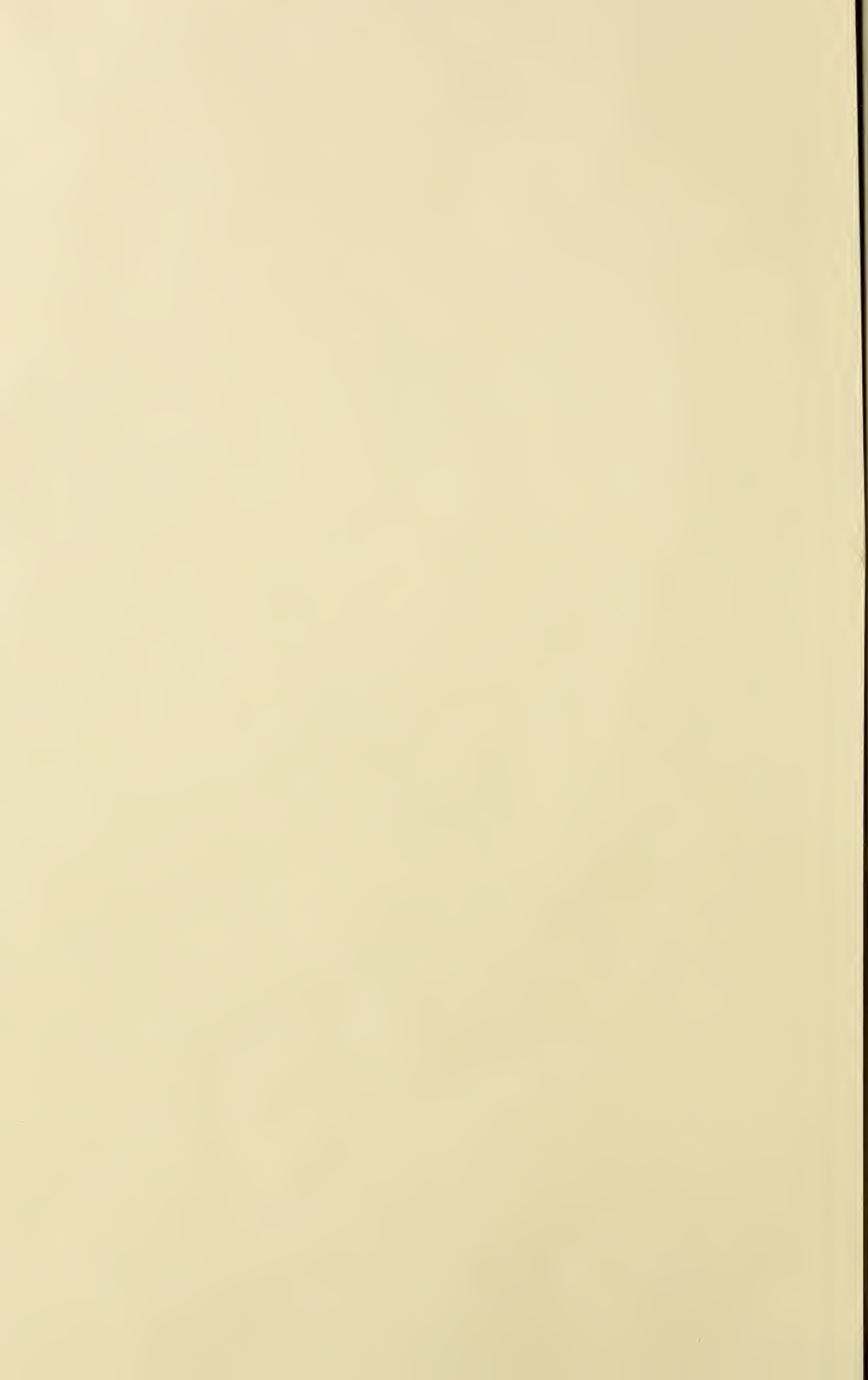


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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. P. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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ARTHUR C. MILLER says that, when he said sudden confinement of a queen works injury, he did not mean that sudden cessation of laying was the trouble, but starvation.

R. C. AIKIN, in *American Bee Journal*, says his average for ten years has been 40 lbs. per colony, and the general average for all except the best bee-keepers in his region has been only half that.

I HARDLY THINK that shouldered staple, p. 890, would suit me as well as a common wire nail for a spacer *between* bars. But for those who find that the common staple used as an end spacer will not stay in place, the shoulder might make all the difference between failure and success.

"SHOOK SWARMS." p. 896. It's a small matter, but it might be as well to use correct English, and call them "shaken swarms." [Ye-s-s-s : but the correct grammatical form does not, to my mind, express the idea. A "shook" swarm indicates to me one that has been *jarred* or *bumped*, not "shaken" by a feeble backward and forward motion.—ED.]

I SECOND the nominations of Messrs. Hill and Rohrig for directors. And in that connection I want to ask that, when my term expires, my friends will do me the kindness to vote for a new man in my place. [Look here, doctor, it is not going to do at all for all the other directors to follow the example of A. I. R. and myself. There ought to be some old timber left on the Board. No, sir ; I will nominate you again, see if I don't.—ED.]

"WHEN A COLONY is made queenless, will the bees, in their haste to rear a successor, select larvæ too old to secure the best results?" When that question was up at Buffalo, you and I were absent at a directors' meeting, Mr. Editor, and on now

reading the excellent report in the *American Bee Journal*, I am surprised to find there was not one (Hutchinson was absent with us) to say a good word for the hoary error that teaches that bees can not be trusted to select young larvæ.

THE TWO AMERICANS are not agreed as to the profits of bee-keeping, the *American Bee-Keeper* supporting the statement that at least \$5.00 a year for each colony is a conservative estimate. I wish I could be sure of at least \$1.00 a year. [Here again is a case where locality should have something to say. In Marengo, perhaps you might be satisfied with \$1.00 per colony ; but in Florida, Texas, Arizona, California, and Colorado, during *some* seasons as much as \$5.00 might be made. I say *some* seasons, because the *year* likewise has something to do with it.—ED.]

THE QUESTION is whether it is starvation that hurts a queen in the mails or being bumped about when heavy with eggs. Possibly both. It seems reasonable that she will not be so well fed as when surrounded by thousands anxious to feed her. But with the cessation of laying will there be the same need of food? And if the trouble comes from starvation, ought there not to be about the same damage in each case? Instead of that, some queens are fatally injured and others unhurt—seeming to favor the accident theory. [It looks somewhat that way.—ED.]

THANKS, Stenog, for turning your batteries with such good effect on the use of "swarm" for "colony," page 895. Now please train them on the wrong use of the word "stand." This last error has not yet got so strong a foothold as the first, and will be more easily routed. [There is no use in your laboring with Stenog. He maintains, as does your humble servant, that the word "stand," as we have used it in our columns, is correct enough ; and, besides, it avoids the repetition of the word "colony" every time. Then by general acceptance it has crept into all bee-literature to such an extent that I doubt whether we could change it if we tried.—ED.]

I've READ with some care Maeterlinck's "Life of the Bee." Its charming style and exquisite word-painting delighted me, and for some pages I thought, "Here's a book at once thoroughly reliable and delightful." Then an occasional error in its teachings jolted me. Further on, bee-lore became more and more diluted, and many pages in succession without a word about bees were occupied with outside philosophizing that was much of it pessimistic, and some of it left a bad taste in the mouth. One familiar with Root's A B C will learn nothing from this book about bees, and the cutting-out of a third of its pages would leave the book improved. On the whole it is not a book for unqualified commendation.

YOU SAY, Mr. Editor, page 897, that you sometimes leave two stories of brood-combs when putting on supers. I wish you could tell us how the yield compares with that of the colonies that have the one story removed. I tried it pretty thoroughly, and was obliged to give up sorrowfully that I couldn't get as much surplus with two stories as when I took one story away. [If the two colonies are the same in strength, then the one that is contracted down to one story would, of course, have more honey. But if one colony is so strong, so boiling over in bees that it could not be squeezed down into the brood-nest of a single hive-body, then I should expect more honey from that stock than if we tried to squeeze it into one brood-nest and then made it get the loafing or swarming fever.—Ed.]

FROM FAR-OFF NEW ZEALAND comes a good hive-tool invented by C. E. England. It is of $\frac{3}{8}$ -inch steel, 10 inches long, $2\frac{1}{2}$ wide at one end, and continuing that width for $2\frac{1}{4}$ inches; then one side is abruptly cut away to $1\frac{1}{2}$ in width, tapering from that to the smaller end, which is $\frac{1}{8}$ wide, making it very nice to clean out tin rabbits. Near the small end a notch is cut so as to make a hook to lift out a dummy by the end of the top-bar—a useful thing. The large end is good for raising covers and supers, and for a scraper. [We illustrated a similar instrument of Mr. England on p. 645; but the new tool you describe embodies, as I understand it, later improvements. One like it was sent here; but if I were making a special hive-tool I would have it somewhat different, and Dr. Miller would have his still different. After all, I doubt whether we shall get any thing much better than the screwdriver and putty-knife that every one can get.—Ed.]

I THINK, Mr. Editor, that hereafter it will be better for you to come to Marengo each time you write footnotes to Straws. Then we could have a better understanding, and not get so much mixed up. We're tangled up about that feeding business, p. 891. I think that you forget that what we were talking about was the advice, p. 862, to use 2 of sugar to 1 of water for *very late* feeding. You are entirely right that a syrup as thin as nectar is the right sort of thing,

but it will not do to feed it *very late*. If fed very late, do you think the bees would either invert or evaporate it? If they will do neither, is it not best at least to do the evaporating for them? I have fed barrels of 5 sugar to 2 water, as already said, and none of it ever turned to sugar; but then I used acid with it. [Yes, I understood that you had reference to late feeding; but our own experience had been so disastrous that I felt like putting in a word of caution. But we did not try the use of acid, and therein might be the difference between our failure and your success.—Ed.]

THE BEES with heads in cells getting honey, says A. C. Miller, p. 899, are usually field bees, seldom nurse bees. As that runs directly counter, so far as I know, to all previously expressed authority, don't you think, Arthur, that you ought to furnish a bit of proof? [I had not thought of this before; but my own recollection is that the great majority of the bees that have their heads in the cells have put them there to get away from the smoke poured in by the bee-keeper during the operation of opening the hive. In the height of the honey season, perhaps a good portion of such bees would be those just from the field; but if Doolittle's observation is correct (and I believe it is), to the effect that the field bees in the rush of the season give their loads gathered to the nurse bees, and that these in turn deposit them in the cells; then those bees that have their heads in the cells are *not* the field bees. I have observed this: That most of the bees thus engaged appear to be young ones. The burden of proof rests on your distant cousin to show that the contrary is true.—Ed.]



Thanks! thanks for the peace that reigns
Within our land to day;
Thanks for the harvest, thanks for all things
For which we're taught to pray.
Thanks for the hopes the present brings
Concerning future days;
Thanks for the firm belief we have
That thanks are half God's praise.



In cases of great weakness, accompanied with constant thirst, a remedy will be found by pouring the white of an egg into a glass and mixing with it about two teaspoonfuls of liquid honey and a few drops of lemon juice or a little citric acid. As a general rule in the sick-room, food and drinks should be fresh—nothing warmed up, and not too much at a time.—*From the German.*



In Stray Straws Dr. Miller has something to say about Maeterlinck's Life of the Bee. Although I spoke highly of the work

in our issue for Oct. 1, the doctor's criticism is about right, although I do not think "pessimism" is necessarily an evil. The *Irish Bee Journal* gave about three pages of quotation from the book, and praised it highly, and here comes *Le Rucher Belge* giving a translation from it in French. The writer of it himself says no one will learn how to open a hive by reading his book. Bees are his text but not his subject, as I understand it.

On page 862 Mr. R. A. Holley says :

On page 799 you quote the *Pacific Bee Journal* to the effect that I have found 625 cases of foul brood in Ventura Co. This is as wide of the truth as some of the estimates of the California honey crop. I have found, up to date, just 103 cases of foul brood in this county this year.

The fault was not on the part of the journal quoted. The mistake arose from my concluding that the total number of colonies examined was the number affected with foul brood. I beg Mr. Bennett's pardon for causing him to appear so inaccurate. But the revised report by Mr. Holley is certainly bad enough, and should arouse vigorous action among bee-keepers there.

THE IRISH BEE JOURNAL.

This new paper was started last spring, and has all the outward marks of an old journal. It is devoted to the development of apiculture in Ireland, and presents a table of contents that is very creditable. It has 16 pages the size of this. It is the organ of the Irish Bee-Keepers' Association, and is edited by J. G. Diggs, M. A., Lough Rynn, Dromod, Ireland. In regard to overstocking the market the editor well says :

Low prices are entirely due to bee-keepers themselves. One correspondent lays the blame on the "women bee keepers, who think that they can never sell their honey quick enough." We do not know whether the complaint lies properly in that quarter. But certain it is that the prices are made by the sellers, and that the drop last month from 7s 6d. to 4s. was caused by the sudden rushing of honey on to the market in very large quantities. In the first week in August one large firm in Dublin was looking everywhere for sections at 7s 6d. per dozen. Within five days glazed sections were going a-begging at 5s., and there is no knowing how far the prices may fall if sellers throw discretion to the winds in this fashion. Honey will keep, and it should be kept until the price is raised again to a fair level. £14,000 worth of foreign honey was imported into England in July, and sections were selling in Scotland last month at 1s. 6d. each. The bee-men who poured their honey into Dublin at 5d. per lb. got all that they deserved, and should not complain.

AMERICAN BEE JOURNAL.

Mr. York has given us a treat in his issue for Nov. 21. Chicago is a suburb of Marengo, where Dr. C. C. Miller lives, and Bro. York has been out there on the trolley to see the doctor and to get some permanent impressions of things around the doctor's home. And he succeeded. First we have a view of the genial doctor himself with an immense hat on, looking very "summery." Then follows a picture of his residence; a surreyful of John Wilson's children; a picture of Miss Emma Wilson, just ready to

smoke the bees; a picture showing the doctor at his typewriter, thrashing out Straws, perhaps; and a number of other half-tones equally interesting. Few pictures have ever interested me more than these; and they come in very opportunely with Prof. Cook's words in the same issue, where he says: "Our American homes could not exist outside of America. Britain is the only other country that comes within telephone call of us in the matter of homey homes; and Britannia pales as poverty crowds comfort, health, and even life, from so many of Britain's households. Think! any boy, the poorest, can safely aspire to his own beautiful home in this grand American country."

These inspiring articles of Prof. Cook on the domestic life of the nation deserve universal attention. Some might disagree with him in his rigid rule of never contracting debt, as it is often a great benefit to both parties to lend and borrow; but by a general application of his rule the world would be far better off. He says our national debt is \$14 a head: Russia, \$24; England, \$72; France, \$150. These foreign countries are sinking deeper and deeper in the mire, while our debt is so small as not to be felt, is rapidly disappearing, and can be paid by 1920.



WINTERING INDOORS AND OUT.

Why a Combination of the Two Methods is Advisable; Feeding and Feeders; Heddon Hives and their Advantages for Feeding Back; Feeding Back on Foundation.

BY J. E. HAND.

"Good morning, friend Hand. I see you are busy among the bees as usual."

"Yes. I am taking advantage of these fine days to prepare my bees for their winter quarters."

"Do you practice cellar wintering, or packing on the summer stands?"

"Outdoor wintering in packed hives has my preference; but there are some advantages in cellar wintering, so I combine the two methods. I examine each colony carefully as to bees and stores. Those that are heavy in stores and strong in bees are packed in chaff or other material on the summer stand. Those that are a little light in stores, or are not so well supplied with bees, are carried into the cellar about Nov. 20, usually. These are good average colonies, but are not quite up to the standard for outdoor wintering, and will do better in a good cellar. Since adopting this plan my losses in wintering have been very much lessened."

"But would it not be better to winter them all in the cellar? As they consume so much less honey, would it not be a great saving in stores?"

"It is true that there would be a considerable saving in stores, other things being equal; but some winters are favorable for cellar wintering, while others are much better suited to outdoor wintering; and so a combination of the two methods is the safest plan."

"Would not location make a difference in this matter of wintering?"

"Possibly. But these rules will hold good wherever it is at all desirable to winter in the cellar."

"Do you prefer permanently packed hives or winter cases?"

"You will notice that most of my bees are in Heddon hives, and therefore can not well be permanently packed. For this and other reasons I prefer some kind of outside case for each hive wintered outdoors, with 2 inches of packing on the sides, and 5 or 6 inches on the top of the hive. The cover can be left on, or the hive may be covered with pieces of heavy cloth or carpet, with a good tight cover over the whole case. I know of nothing better for this purpose than the winter case made by the Root Co."

"But what are these boxes with slat partitions—something new?"

"Oh, no! on the contrary, they are older than the movable-frame hive. Those are Quinby feeders. I got the idea from an illustration in Quinby's *Mysteries of Bee-keeping* Explained, published in 1858. I do not know whether they are mentioned in the revised edition or not. You will notice it is a bottom feeder, and was made for feeding bees in box hives. The hive rests square on the feeder, which is 2 inches deep, the same width as the hive, and 3 inches longer. This space is at the back of the hive, and is to fill the feeder. It is covered with a little board. The feed flows through a wire screen into 10 or 12 little troughs, or partitions, $\frac{5}{8}$ wide by 2 inches deep the length of the hive, excepting about an inch in front for the bees to come up. The inside of the feeder is lined with tin to keep it from leaking. There is no feeder illustrated in any of the catalogs that can approach this one. It is especially adapted to feeding back."

"What about those other feeders with the glass jar?"

"Oh! that is my own invention. Like the other it is a bottom feeder, and it is at the back end of the hive. It is on the 'atmospheric' principle. The feed flows through a hole in the top of the inverted glass jar through a wire screen into a trough which extends the width of the hive. The bees have access to the feeder by removing the cleat from the back end of the bottom-board. The trough is always full. As long as there is any in the jar, the bees can not pass beyond the trough, and are not in the least disturbed in removing and refilling the feeder; and the feed is in a lit-

tle trough right under their noses, and will be taken up very rapidly. I mention these two feeders at length because they have been the means of solving the problem of feeding back and reducing it to a science. No top feeder is of any account for feeding back. You may paste that in your hat."

"Do you find it profitable to feed back extracted honey to have it stored in the sections?"

"Yes, with the right kind of hive and appliances, and considering the difference in price, as well as the greater demand for comb honey, I find it very profitable. Note what E. R. Root says on page 828, about the demand for comb and extracted honey. I had noticed that, and had about concluded to produce comb honey next year."

"What do you think of Mr. Doolittle's experience in feeding back, as given in the Aug. 1st GLEANINGS?"

"I am not at all surprised at the results of his experiments. I have had about the same experience, and so will any one else who tries to feed back with a frame as deep as the one he uses. However, I consider his frame about as well adapted to feeding back as it is to producing comb honey when gathered from the fields."

"Then you consider that a hive that is well suited to the production of comb honey is just as well suited to feeding back?"

"Yes, that is my experience exactly. Mr. Doolittle fed his bees 50 lbs. of honey, and they only just got to building comb nicely, and then they struck and refused to do any thing, after which he gave up the whole business in disgust, as almost every one else does who tries it."

"What do you think became of that 50 lbs. of honey?"

"Well, I will tell you what I think became of it. You will notice he says he fed them about 15 lbs. each, which they carried off during the day. At that rate it would take only a little over three days to carry off the 50 lbs. They were not building any comb; and as it takes three or four days of feeding to start comb-building, there could be no place to store the feed except in the brood-chamber; and as his frame is $11\frac{1}{4}$ inches deep, there was plenty of room for it, or the queen might have been a poor one, and the bees simply crowded her out and filled up the brood-chamber. I have often found this the cause of a failure in feeding back. A good queen will compel the bees to move the honey out and give her room, while a poor one will be crowded out completely, and the brood-chamber crammed full of honey, after which the bees will work about as Mr. Doolittle says his did."

"Do your bees ever refuse to work in the feeders?"

"Well, not so bad as that; but there is a great difference in the working qualities of bees. Some will build comb faster, and cap their honey whiter. I keep a pedigree of these bees, and use them for feeding back. They are also likely to do better field work. I had three colonies this year

out of fifty that I could not make do satisfactory work. Two of them were poor comb-builders, and the other capped the honey so badly that it was not fit to sell. Those queens will lose their heads next spring."

"How much do you find it profitable to feed at a time?"

"I give them all they will take up in 12 hours if they are building comb; if not, I feed about a quart per day until comb-building is started nicely. My best colonies would take about 2 qts. every 12 hours."

"How long would they keep this up?"

"They kept it up this year from Aug. 1 to Sept. 25, when the weather became too cool for comb-building."

"What kind of hive do you consider the best suited to feeding back?"

"There is only one kind of hive that I know any thing about that is at all suited to feeding back. It must have a very shallow frame, and must be capable of contraction horizontally so that the brood will be spread out evenly under the super. The Heddon is the only one that will do it."

"How deep is the frame in the hive you use?"

"My frame is $4\frac{1}{4} \times 17$ inches, comb surface, and 8 of these combs make a section of my brood-chamber as I use it for feeding back. There is a queen-excluding honey-board between the brood-chamber and super, just as in hiving swarms."

"But will not such contraction of the brood-chamber, combined with heavy feeding, induce swarming?"

"No, not to amount to any thing. I wish it would, for then they would build comb faster and cap the honey whiter. I had only two such swarms this year."

"Have you ever tried producing comb honey from foundation by this feeding-back process?"

"Yes. I have produced over 2000 lbs. this year of extra-fancy comb honey from foundation by this system. I can assure you it is no mere theory with me, and there is nothing I like better."

"Well, friend H., how is it that you succeed in getting your bees to accept foundation when others report nothing but failure?"

"Well, friend Charles, it is as I told you before—it all depends on using the right kind of appliances. There are several different kinds and makes of foundation, and it may be possible that they have not tried them all yet, and this may account for it in a measure. If you will excuse me, it is getting nearly time for the local, and I have to ship two crates of honey. Come over again and I will tell you all about how it is done, as well as I can."

"Thank you, friend H. I am very much interested in this subject, and I assure you I shall not fail to avail myself of this privilege."

[Mr. Hand has promised to write a series of articles telling of his experience along

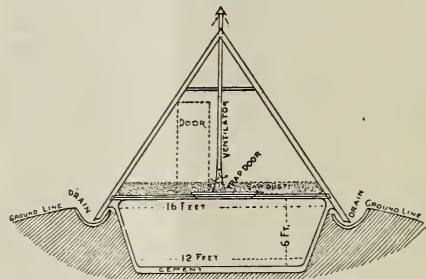
various lines, and this is the first of the series. He uses the conversational method, as that is very easy to follow, and, besides, it has the further advantage that the question brings out in every case the reason for using this or that method. Mr. Hand, it seems, has made a success of feeding back on foundation. This is going further than most of us have practiced, and we await with interest what he will have to say on this subject next time.—ED.]

THE VENTILATION OF BEE-CELLARS.

The Construction of the Bingham Bee-cellar.

BY E. R. ROOT.

As explained elsewhere in this issue, we have at our basswood yard a 12×20 beecellar, built on the lines of the Bingham repository, which we described early last year. As some will probably have forgotten how this was built, I present a cross-sectional view, giving its general construction. As indicated in the diagram, the cellar is 16 feet square at the top, and 12 at



the bottom. The sides are sloping (to prevent caving in), and lined with cement. A double floor, packed with sawdust, covers it, and over this is a gable roof. Through this floor there is a trap-door, and along about the center a 16-inch ventilating-flue connects through the top of the cellar to the roof in the upper structure. Mr. Bingham's idea seemed to be that the bees need a great deal of ventilation. In the drawing the ventilator is shown to be only about 3 inches in diameter; but, as he explains, this was not found to be large enough, and was subsequently replaced by the larger one.

Our cellar at the out-yard was built on the same general plan, with the exception that the sides are less sloping, and are lined with a single thickness of hard brick laid in cement—that is, the sides are lined with a 4-inch wall. In our clay soil we were afraid to trust the cement lining; but to strengthen the wall further, the sides and ends were made slanting, so that the top of the cellar is 8 inches wider and longer than the bottom.

Instead of constructing a plain cheap gable roof we moved a building, which was out of use, over this cellar, put in it a double floor packed with sawdust 10 in. thick,

this floor serving as a ceiling to the room below. The building had been constructed, and bees put into the cellar, before I happened to think that no ventilator had been provided; then remembering that some of the prominent advocates of indoor ventilation had said that no ventilation, or but very little, was required, I began to wonder whether any was really needed. I accordingly wrote to Mr. Doolittle (a no-ventilator man), who has used successfully for a number of years a bee-cellar built on a side hill, having walls somewhere about 20 inches thick. I explained the construction of our cellar, and asked him if, in his opinion, a ventilator would be needed. This is his reply:

Mr. E. R. Root:—I have made no provision for ventilation of my underground bee-cellar for the past 15 years. It is 24x7, and 7 feet deep, and I winter from 60 to 85 colonies in it each winter with good success. The walls are of stone mason work, 16 inches thick, and the top covered with 4-inch-thick flag-stone, with 3 feet of dry earth over this. But the joints between the flag-stones are so open that a little dirt sometimes sifts through. Then, of course, a little air gets in through the four doors used for the entrance. I suppose you will have an entrance also with doors. If so, the only question would be whether your double floor, packed with sawdust, will give less ventilation than my flag stones. I confess to not being able to answer that question satisfactorily in my own mind, as dry dirt is quite porous, and the cracks between the flag-stones are large enough to stick your finger through in some places.

On one still, damp, misty time, holding on a week, I went into my cellar, and the air was so impure that the candle would not burn; and, when nicely burning between the entrance doors, it would fade away and soon go out on going into the cellar. It seemed a little hard for me to breathe, but the bees came out all right. This was the only time but that the air has seemed pure. At the time the candle would not burn there was four feet of wet snow all over the whole ground, roof and all. Just what advice to give you I hardly know; but if your cellar were mine I think I would risk it without a ventilator; but I do not feel like advising you to do so. Perhaps my experience as given above may help you a little in deciding what to do. I know nothing personally of clamps.

Borodino, N. Y.

G. M. DOOLITTLE.

On receiving this I sent copies of it to Dr. Miller and Mr. Bingham. Concerning this matter, Dr. Miller writes:

Dear Ernest:—I've studied over the problem as to your cellar quite a little, but without feeling competent to advise. With the right kind of soil and covering I think there would be no need of special attention to ventilation. But if conditions were not all just right the results might be disastrous. Perhaps the sure thing to do would be to have the shaft put in and closed up just as if no shaft were there. If all went well it could be left thus all winter, and you would practically have no shaft. But if an inspection every two or three weeks should show that the danger-line was reached, then you could open up the ventilator. The point is that, with the ventilator, you can do either way, and without it you are helpless if it should be needed. The temperature and the number of colonies have something to do in the case.

Marengo, Ill.

C. C. MILLER.

Following is the letter from Mr. Bingham:

Mr. Root:—Your esteemed letter is at hand, also Doolittle's. The door on the level of the floor of his cellar, and the difference shown by his candle, would demonstrate that the carbonic laden air found a place where it could be mixed with pure air at the door. My experiments with a three-inch tin conductor-pipe opening into the room over the cellar demonstrated that, under such conditions, it would not be safe to enter such a cellar or any other place where a lamp would go out. If there was no danger one would like to be able to see his bees now and then.

If a 16-inch-square flue does not reduce the tempera-

ture below 32° (and mine did not as low as that last winter), it would seem needless to endanger oneself, even if the bees were not injured by an air-tight cellar. It may safely be borne in mind that a cellar entered from the top would not have as reasonable opportunity to mix its vitiated air as one with an entrance on a bottom level.

My bees were taken into my cellar yesterday afternoon, Nov. 15. The temperature is about 35°, flue and doors above them open. The upper room has two large ventilators, one at each end darkened partially, and located at the point of the gable.

If the temperature should fall below 30° my doors will be closed. At 32 to 40° the light does not seem to cause the bees to fly out. It would be a nice temperature outside. Your cellar being new may need more constant ventilation than if older. My ventilating-flue stops on the ceiling-floor. Said flue is supported on 6-inch joists on the lower side of said joists, covering a space about 4 feet square. Thick building-paper, two thicknesses, is secured by cleats. This leaves two 4 feet by 6 inch entrances as a supply for the flue, and no light is let in. The top of the flue has a cap over it to keep out dirt, rags, and rain.

The greatest enemy to wintering out or in doors is dampness, either in the air or hives. The reason why your bees under the machine-shop were so quiet was because so dry with sweet good air.

I intended to put in another duplicate flue before my bees went into the cellar, but was so busy I did not. If I were to build another cellar I would double the size and increase the height of my flue ventilation all I could.

It is the upper air in a cellar that needs removal. The steam and dampness are there while the lower stratum of air remains ready to supply the flue-draft, which is proportionally greater according to its immense elevation. This is not the sub-ventilation idea, you see. The lower stratum is all right if sufficient y mixed with air that goes down the flue from an altitude of 20 or more feet. The flue must not reach below the ceiling, or be away from the center of the cellar. A flue reaching to the bottom of the cellar showed a temperature at its lower end nearly equal to that outside, while the general air of the cellar remained at 40 to 45° a few feet away from the inlet, and the air was stuffy and damp. The large tall flue enables the cellar to be kept dry and cool without admitting light. This is valuable when bees become uneasy from any cause, most noticeably in the spring. Mr. D., I think, has been in the habit of opening his doors at night in spring. The large tall flue from the ceiling would have prevented that. That others have found full air in cellars, and not reported, shows the value of bee-journals, all of which placed my lantern experience before the bee-keepers at once as soon as received.

Farwell, Mich.

T. F. BINGHAM.

P. S.—Nov. 18.—Clear, 25° at 6 A.M.; air in cellar, doors open, better, it, and the room above, 35°; room above cellar, 32°; doors all around open all day the 17th; cellar at 40°; bees hibernating peacefully, as if outdoors; no effort to fly to the open doors. T. F. B.

It appears from these letters that much depends on special conditions. Taking the advice of Dr. Miller I have had a ventilator put in. But this was made before the receipt of the letter from Mr. Bingham, and is only 6 inches square instead of 16; and I am now wondering whether I have made it large enough. If I had it to do over I would make it fully 16 inches square as described by Mr. Bingham, and will do so later if the bees become uneasy during winter.

But the special feature of the Bingham cellar is that it is virtually a cistern—that is, the walls of the cellar proper are all under ground, without any part of them projecting to the outside air to get through, thus affecting the temperature inside.

Our experience in wintering bees in the machine-shop cellar last winter was most favorable; indeed, I never heard or read of a case where there were so few dead bees as we had on our cellar bottom. As Mr. Bingham points out, it was absolutely dry, and then it received a great amount of ven-

tilation from the larger cellar surrounding the wintering-room; and, as I have before stated, the larger cellar contained several carloads of potatoes, and it was necessary to keep the temperature down for these as low as possible. During warm weather the cellar was kept closed to keep out the warm air. In cold weather it was ventilated, and that quite often. Perfect ventilation, and an entire absence of moisture or dampness, resulted in the phenomenally good wintering of all the bees. This year we have in that same cellar 250 colonies instead of 40, and about the same number outdoors. These are in addition to 100 colonies in the Bingham cellar at our outyard.

It is my purpose to make repeated observations to determine the effect of ventilation or no ventilation, and report through these columns.

THE BEE IN LAW.

Finding Bee-trees; Early Code; Licensees; Recovery of Reclaimed Bees.—Article 4.

BY R. D. FISHER.

Having laid down the general rules that govern property in bees, their identity, transportation and larceny thereof, it will be our purpose in this article to give the result of the different actions at law growing out of the finding of "bee-trees." In primeval days "bee-hunting" and "honey-gathering" were both profitable and fascinating pastimes. Even in this day, old bee-hunters can not refrain from following a "course" when it points to the forest. As evidence of this, a bee-tree was cut recently on the Young-farm forest, five miles west of Kokomo, Ind., which beats all records for size and yield. The "gum" in which the honey was stored was 18 inches in diameter and 11 feet in length. Pieces of solid comb 15 inches wide and 10 feet long were taken out. There were nearly two barrels of choice honey, weighing nearly 600 lbs. George Harness, who helped cut the tree, is 84 years old, and says he has hunted bee-trees all over the West for 70 years, but declares that this tree beats all former records.

There was a sort of code among bee-hunters in the earlier days of this country, and it is said to have been generally observed. It was to the effect that, when a bee-tree was located and marked with the initials of the finder, his rights were *prima facie*, and zealously observed. But this code did not hold good in law, especially against those holding an interest in the land. "If a person finds a bee-tree containing honey, or a hive of bees on another's land, and marks it with his initials, he does not reclaim the bees and vest the exclusive property of bees or honey in himself, as against one of the heirs having an interest in the land; nor does he acquire the right to bring an action of trespass against the heir for cutting down the tree and carrying away the bees and

honey," says the New York Supreme Court in the case of *Gillett v. Mason*, 7 Johns, N. Y., 16. An early and noted case is reported in 1 (Root) Conn., 209. Goodwin sued Merrill for cutting down a tree in the forest, that had a swarm of bees in it, and taking the honey which he (Goodwin) had previously discovered. Merrill plead that said bees were a swarm from his hive; that he had frequently "lined" them to near said tree, and that said bees were his property. The plaintiff replied that he found them wild in the woods, and had a good right to take them. The trial court gave the plaintiff judgment of 30 shillings damage. The Supreme Court reversed this judgment, and said: "A man's finding bees in a tree standing upon another man's land gives him no right, either to the tree or bees; and a swarm of bees going from a hive, if they can be followed and known, are not lost to the owner, but may be reclaimed."

As early as 1804 the New Hampshire Supreme Court held that one who finds a swarm of bees in a tree on another's land, marks the tree with his initials, and notifies the landowner, can not maintain trover against the land-owner for the bees and honey which he obtained and converted to his own use by felling the tree.—*Fisher & Parmlee versus Smith*. *Smith's New Hampshire Report*, page 60.

LICENSE; POSSESSION.

Where one discovers bees in a tree, obtains a license from the owner of the soil to take them, and thereupon marks the tree with his own initials, he gains no property till he takes possession; nor can he maintain trespass against a third person who cuts the tree and takes possession of them on a subsequent license from the owner of the soil. The two licensees stand on an equal footing; and he who first takes possession becomes the owner.—*Ferguson vs. Miller*, 1 Cow. (New York), 243.

This case has been commented on adversely, and critics say it is bad law. The better law on this point is promulgated by the Vermont Supreme Court in *Adams vs. Burton*, 43 Vermont, 36, where it is held that one who has obtained a tacit consent from the owner of the soil to cut down a bee-tree thereon, and get the honey, has, while in the act of cutting down the tree, a superior right over a third person to whom the owner has given subsequent consent, but without revoking the former's authority. The court said: "These parties stand, as between themselves and as respects the legal principles applicable to the case, in precisely the same position as though neither had any authority from the owner of the tree, and both were trespassers upon his rights, or as though there were no individual owner of the tree. How, then, would the case stand? No principle is better settled than that a person in possession of property can maintain trespass against any one who interferes with such possession who can not show a better right or title."

The law of the bee-trade, so far as discovery is concerned, seems to be in an unsatisfactory state as to the relative rights of trespassers. The relative rights of parties, both of whom acknowledge the superior right of the owner of the soil, seem never to have been precisely described.

RECLAIMED BEES MAY BE RECOVERED FROM TREE.

We have treated bees found in trees as wild and unreclaimed; but a different rule of law applies to bees that have been reclaimed and once hived. If bees temporarily escape from the hive of their owner who keeps them in sight, and marks the tree into which they enter, and is otherwise able to identify them, they belong to him and not to the owner of the soil. In such a case the property draws after it possession sufficient to enable the owner of the bees to maintain trespass and recover damages against a third person who fells the tree, destroys the bees, and takes the honey, notwithstanding such owner himself is liable to trespass for entering on the land of another for a similar purpose without authority. The right of ownership continues; and, though he can not pursue and take them without being liable for trespass, still this difficulty does not operate as an abandonment of the bees to their liberty by nature. Hence the dictum that "*the owner of the soil is entitled to the tree and all within it*" is true only so far as respects an unreclaimed swarm.

We have endeavored, so far as case law is concerned, to define the rights of the finder of bees and a person interested in the soil, and between persons each claiming to be the finder, and between licensees having authority to enter the land of another to take bees and honey.

In addition to authorities already cited, see *Idol v. Jones*, 2 Dev. (N. Car.), L., 162; *Goff v. Kiltz*, 15 Wend. (N. Y.), 550; *Wallis v. Mease*, 3 Brim. (Pa.), 546.

HEREDITY AND THE VARIATION IN ANIMALS.

The Fundamental Rule of Uniformity.

BY RIP VAN WINKLE.

Referring to a Straw, in your Oct. 15th edition, asking a question, "What is a tested queen?" I will take the risk of your quoting Pope's celebrated line, "Fools rush in where angels fear to tread," and make a suggestion if you will permit; and with all due deference to Dr. Miller, for I may always say of him on bee-keeping, as James Russell Lowell does of the "Bosting" people, "Wat they don't know ain't hardly wuth the knowin'." I do not see much difficulty in determining the matter if we go by the fundamental rule of *uniformity* in her workers. Any queen which produces all uniformly marked workers—all three-banded or all five-banded—I should pronounce pure Italian. Mr. Darwin, in his "Plants and

Animals under Domestication," has shown by abundant evidence that the tendency of all crosses is for offspring to revert back to some previous ancestor, near or remote. This, of course, is among vertebrates; for we have few if any well-defined experiments as to insects. We know that the cross between a black drone and Italian queen produces workers of all three degrees; viz., of pure black, one band; two bands and three bands, from the same queen. I should expect to find the rule hold good among five-banded bees, which I regard as only a recent "sport" from the Italian, *not* a distinct variety. A queen of the five-banded stock may throw a variety of *bands* in her workers, and still be pure or purely mated; but if she throws a black worker, or one with less than the three normal *Italian bands*, then I would say she was impurely mated.

Heredity, the variation of animals under domestication, the laws of breeding, are very interesting studies, and all the more from being intensely intricate, as is instanced by another fact bearing on this same subject, mentioned by Dr. M. and yourself on the next page of Straws, 814, about the influence, or, as Mr. Darwin would call it, the "prepotency," of the male in the matter of the negro and white woman, and black and white fowls. These are not isolated instances. There are many such on record, and it is extremely difficult to say what the extent of such influence is.

Prof. Cook, in his "Manual of the Apiculture," second edition, 1878, page 89, under the general heading of "Influence of the Drone," is inclined to think, as Dr. Miller does, that the influence is not sufficient to vitiate the blood of the offspring in mammals, but only a temporary one. It might add to our knowledge if some one would breed from one of these marked offspring and note the result; and I would say the point to be ascertained would be whether such influence produced not merely change of color, but any well-defined change in the program from the known characteristics of the brood, which would be of most importance to the breeder. There is a case on record of a thoroughbred English mare being bred to a jack, and having a mule colt; and, though bred to thoroughbreds afterward, her progeny showed mule markings. But it is not stated that their other thoroughbred qualities were changed, which, I repeat, would be the practical question for the breeder.

Just how far the question of parthenogenesis in bees, discovered by Dzierzon, would modify the fundamental laws of heredity which we have learned about other domestic animals, remains to be ascertained; for upon this subject, to quote the words of Darwin, "Our ignorance is profound."

[There may be something in what you say, to the effect that queens of the five-banded stock would, if they had met a black drone or a hybrid, show the fact in

their progeny, in accordance with the "fundamental rule of uniformity" in pure stock; but I never yet have seen *all* the bees of so-called five-banded queens show uniformly five yellow bands. The best average for one queen is, perhaps, 50 per cent with five bands; 25 per cent with four, and the rest with three. As a rule we do well to get 25 per cent five-banded workers, and the rest three and four banded, all from the same queen. I never yet have seen a uniform number of bands from any one queen of the extra-yellow stock; therefore I have my doubts whether the "rule of fundamental uniformity" would apply in this case, although it might do so.—ED.]

BEE-KEEPING IN MONTSERRAT.

BY A. J. JORDAN, AGRICULTURAL INSTRUCTOR.

Montserrat is a small island 16° 45' N., 62° 7' W., 8 miles broad and 12 miles long, forming one link in the chain of beautiful islands known as the Lesser Antilles. The bare statement of the length and breadth of the island would give the bee-keepers used to a flat country no idea of the possibilities of a place like this. There is not an acre of level land in the whole island. As in the case of Dominica and St. Kitts, Montserrat is of volcanic origin, and was, in ages past, thrown up into the most fantastic peaks. The heavy rains, too, have lent themselves to the cutting-up of the surface of the land. As the water pours down on the steep slopes of the mountain-sides it gathers together and forms torrents which cut deep chasms, called here "guts," in the surface of the earth. Many of the trees and plants growing at or near the top of the guts send down their long aerial roots to the bottom of the gut; and upon these many of the climbing plants (iponeas, legumes, etc.), which obtain sufficient soil to root in at the bottom, climb upward. The mountain-sides are like a greenhouse stage, rising in such a way as to enable the plants to grow far more thickly than they could possibly do on the level.

Bee-keeping has been carried on for many years in a rough-and-ready way, the bees being kept in boxes and barrels, and the combs containing young bees as well as honey being periodically cut out. The comb, when cut, was, as a rule, put into a coarse cloth, and squeezed; and you may guess that the honey obtained was not of the best quality, and was useless but for consumption among the people themselves.

Some two or three years ago Mr. I. T. Allen commenced to keep bees in the modern hives, and a little more than a year ago Mr. E. F. Dyett obtained two ten-frame hives; but the actual beginning of the present bee-keeping stimulus was the sending, by the Imperial Commissioner of Agriculture for the West Indies, of Mr. W. K. Morrison to lecture here on bee-keeping. Since then

several people have got hives, and are experimenting in a small way. Three colonies of black bees were obtained by the Agricultural Department, in barrels, from one of the people here, and were transferred to ten-frame hives. Nine colonies have since been obtained from these three, making a total of twelve.

The two Italian queens you sent are working well. It is interesting to see how the bees from these queens dash in and out of the hives, very differently from the deliberate movements of the Creole black bee.

The three difficulties the bee-keepers have to overcome here are bullfrogs, moth, and lizards. The first is, I suppose, peculiar only to this place. Bee-keeping with the hives on the ground would be a failure here, for the frogs would simply lick up the bees as fast as they could come home. We keep the hives two feet from the ground.

The moth has given a little trouble in slack time—that is, September, March, April, and May; but they do not trouble strong colonies.

Nothing as yet has been discovered to prevent the lizards from attacking the bees; but as about three bees satisfy a lizard the damage done is not great.

I see by GLEANINGS that "covers" are still under discussion. I may say those sent here are a failure in this climate. No matter what is done, water finds its way to the combs.

WIRED FRAMES WITHOUT FOUNDATION.

Are they Practicable? Use of Wooden Stays in Place of Wire; an Unwelcome Fact about Alfalfa-growing.

BY O. R. WEAVER.

I wish to secure the advantages of wired combs without the expense of using full sheets of foundation. I am not able to stand the expense. Can I have combs built from starters on a wired frame? I never tried it, but don't think I can have them built that way.

I have another plan that I never heard of any one using, so I wish to ask your idea of it. This is my plan: Take strips of $\frac{1}{4}$ x $\frac{1}{4}$ -inch stuff; cut them off $\frac{1}{8}$ inch longer than the distance from the top of the bottom-bar to the bottom of the sawed grooves on the under side of the top-bar. Cut a notch $\frac{1}{32}$ deep in top of the bottom-bar; spring the bottom-bar down a little, and slip the strip in, putting one end in the groove where foundation goes. First, one would have to cut the starters so they would go in between the strips, and strips and end-bars of frames. Now, would the bees cover the strips with comb so the comb would be stronger? I am up 6500 ft. high; winters are cold, and snow gets deep. Don't you think double-walled hives would give better results?

While you are writing so much about alfalfa. I think it would be advisable to sound

a word of warning. It is this: The experimental stations are advising the cutting of alfalfa when from 10 to 25 per cent in bloom, and the farmers are beginning to put it into practice. At this place it used to be two crops; now they are beginning to cut three. At Aztec, N. M., they used to cut three; now some are cutting four, and more will do so in a few years. When cut three times here and four at Aztec it is no use for bees. I believe that, in a few years, it will do bees no good except where kept for seed.

How many strips should I use in a standard frame to make it good and strong, so it will stand the extractor?

Bayfield, Col., Oct. 12.

[It is perfectly feasible to use wired frames without foundation, providing one understands the art of getting *worker* combs built. The presence of the wires interferes little if any with such work; but when starters of foundation are used, the bees will draw out the starters, extend them down over the wires, and the work is almost as perfect (providing one knows how to get all worker comb) as when full sheets are used. But the majority of beekeepers who have tested the matter agree, I believe, that, as a rule, and under conditions as they ordinarily exist, it is better to use full sheets of foundation on wires, and mainly because of the difficulty of getting all worker comb. Your wooden "stays" might answer, but they would be too large and clumsy, and the tendency would be for the bees to build ridges, or what we call "dead furrows," along the line of each stick. Better—far better—use wire.

With regard to alfalfa-growing, I fear there is too much truth in what you say. If the ranchmen keep on in this way, then the great alfalfa-fields, where hay is the object, will, as time goes on, be no more the paradise of the bee-keeper. All along the line of travels I heard how the ranchmen were, year after year, cutting their alfalfa earlier and earlier, until it seems now that, just as soon as it comes into bloom, they must start their mowers, and that, too, when bees are just beginning to roll in the honey by the carload.—Ed.]

G. H. H., Maine.—Yes, excessive smoking does have a bad effect on bees, as I believe it has a tendency to shorten their lives even if it does not kill them on the spot. Beginners are apt to smoke their bees to excess. Very often two little whiffs of smoke are sufficient. If the bees are very cross, and are inclined to rob, a little more smoke to bring the colony under control may be necessary. Too much smoke has a tendency to cause the bees to gorge themselves, and even uncapped comb honey. This gorging is wasteful of honey, and the uncapping spoils the appearance of the face of the honey.



STARTING IN BEE-KEEPING.

"Good morning, Mr. Doolittle. I am about to make a start in the bee business. I think of buying 50 colonies of Mr. Smith, and I came over to see what I could find out in the matter which would be helpful to me."

"What do you have to pay Mr. Smith for bees?"

"He said he would let me have 50 colonies this fall, hives and all, for \$200, or he would let me have them next May for \$250, as there is some risk to run in wintering bees. Which would you prefer to do—buy them this fall or next May?"

"How many colonies has Mr. Smith?"

"He has about 250."

"If Mr. Smith will give you your choice out of the 250 colonies next spring, I should prefer to wait till next May, and pay the \$50 extra. Otherwise I would take them now."

"Why?"

"Because, in the former case Mr. Smith practically insures the bees against all loss in wintering; while if you do not have your pick he agrees to give you only so many colonies; and you might not have as good an average if you took them as they come as you would have did you take all good colonies this fall. But why do you wish to buy so many colonies?"

"So as to have a good start, and a sufficient number to pay me for 'dabbling' in bees at all."

"I hardly think this the part of wisdom. It seems to me that 50 colonies of bees would be about twelve times as many as a beginner should buy."

"Why?"

"Have you had any experience with bees?"

"No—nothing more than that I have been at Mr. Smith's two or three times, and have read about the profit there was in bees, out of a paper I picked up."

"As I thought. You are a beginner, and the beginner should guard against going recklessly into bee-keeping by putting a lot of money into a business he knows nothing of. It is this getting crazy over a business which looks to be a good thing, but with which we are not acquainted, and putting a lot of our hard-earned money in it, expecting to make a fortune, which ruins so many. To be successful in anything, a man must 'grow up' into it, as it were, by years of patient toil and study, till he becomes master of the business, when, in 99 cases out of 100, he will succeed."

"When and how did you begin?"

"During the winter of 1863 I became interested in bees by reading a book on the subject, which I found in the house; and,

as father had kept bees several years before, I knew something about them, but not after the improved fashion, as father kept his bees in box hives. Next I subscribed for the *American Bee Journal*, read Quinby's and Langstroth's books, and in March bought two colonies of bees, and the hives which I needed for two years, at a cost of \$30 for the whole."

"How did you succeed?"

"There being a poor season in 1869 I had but one swarm from the two colonies purchased, and had to feed \$5 worth of sugar to get the three through the winter of 1869."

"Whew! If I had such success as that with my 50 I should wish I had never gone into the business, as that would add \$125 to the first cost of commencing. But did you do no better the next year?"

"During 1870 I received enough from the bees to buy all the fixtures I wished for 1871, and a little to help on my other expenses on the farm, for farming was my main business at that time; and the first \$35 was all I ever paid out for the bees but what they brought me in; for I resolved, after this first \$35, I would lay out no more money on them than they brought in, believing that, if I could not make 3 colonies pay, I could not 300. But had I had 75 colonies at that time, with little or no experience, the loss of throwing the business up would have been greater by many times than \$35."

"But it seems you did not throw it up."

"No. During 1871 I got enough from the bees to a little more than pay expenses, besides a lot of experience, which was of more value to me during the years to come than many dollars would have been without the experience; for in the fall of 1872 I found that I had an average yield of 80 pounds of comb honey from each colony in the spring, which was sold so as to give me \$559, free of all expense incurred by the bees."

"Pretty good pay, was it not?"

"Well, yes. But you will see that this was the first I had really gotten, so it must be spread out so as to cover a period of four years. At this time I did not have as many bees as you propose buying to start with. My opinion is that, had I bought 50 colonies to start with, I should have turned from the business in disgust, with a loss of several hundred dollars, and that the bee-world would have been spared the scribbling done over Doolittle's name for the past 30 years."

"But you succeeded?"

"Yes. But before we go further I wish to tell you about something which pleased me during 1872. I bought an extractor, and, being determined to give the bees the care they needed, and knowing that the time the bees needed the most attention came in haying time, I hired a man to take my place in the hay-field. It so happened that he commenced work on the day basswood commenced to bloom. Previously I had hived a prime swarm, and concluded to devote them to extracted honey. The man worked 16 days at \$1.75 a day, and I

extracted honey enough from that swarm during those 16 days to pay the man for his work. I tell you this to show that, when properly managed, in a fairly good season, one swarm of bees is equivalent to a man at work in the hay-field, and so it will not pay to neglect a whole apiary to go into the field to work, as many would-be bee-keepers so generally do, and afterward growl about the bees not paying them. You can hire a man to take your place in the hay or harvest field; but if you expect to become master of the bee business, so as to make it pay, you can not hire a man to take your place in the apiary during the honey season, as it takes much more skill to be a successful honey-producer than it does to pitch hay successfully. When the bees do not require any special attention, then they can be left to do other work as we have time; but if the bee-keeper would be successful, he can not afford to neglect them for a single day, when that day will put them in condition to bring him dollars in the near future."

"I think I begin to see that much which I have thought about 'bees working for nothing and boarding themselves' has been merely an idle dream. But what of the years after 1872?"

"Since then my average income from the bees has not been far from \$1200 a year, above the expense incurred by them. In other words, the bees have paid me a salary of not far from \$1200 a year, on an average, for the past 28 years, and that with only about 75 colonies on an average each year. I have not kept a larger number, on account of other things which demand my attention more or less of the time. Had I bought 50 or more colonies to start with, the expense in starting would have been from \$350 to \$500, which, in all probability, I should have lost in the business, for I should not have had a knowledge equal to doing so large a business on the start."

"I am glad to have had this talk with you; and now on leaving tell me in brief just what you would advise in the matter of my keeping bees."

"My advice to you, and all others thinking of bee-keeping as a business, would be, purchase from two to four colonies of bees; post yourself by reading and experimenting with them, as you can find time from the business you are already in, and thus find out for yourself which is the better for a livelihood—the business you are already in, or keeping bees. If successful after a series of years, you can give up your other business if you wish to; and if bees are a failure in your hands, then you are but little out for having tried your hand at it."

[Although Mr. Doolittle has cautioned beginners against expecting too much from bees, yet in spite of that caution some may imagine they can do as well as he. When he began, prices on honey were much higher than now, and the results, from a dollars-and-cents point of view, would be cor-

respondingly higher. Then Mr. Doolittle is also a queen-breeder; and had he not been such it would have been difficult for him with only 75 colonies, average, to secure such good results. I do not mean to belittle what our friend has done—not in the least; but one who begins *now* should understand that the possibilities from so few bees are not so great.—ED.]



E. M. E., Ohio.—Queens will sometimes lay two eggs in a cell, provided they are crowded for room; but if a queen is somewhat defective she may do so when there is plenty of room.

L. L. B., Va.—It is a very difficult matter to get queens purely mated in localities where black bees have been for a number of years. You will probably have a mixed progeny just as you describe. In regard to the queen that curled up and appeared to be dead, I would state that she had what we call the cramps. It very frequently happens that when a queen is picked up by the wings she will curl up so tightly that she seems to get a hitch in the back, and, as a consequence, lies down and remains apparently lifeless; but if put into a cage, and left alone a few minutes, she will be found running about as lively as ever.

E. O. O., Vt.—I think you could use the bees in the greenhouse. There will be some loss from their bumping their heads against the glass, and dying. If possible, keep the temperature higher than 50, at least during the day time. If the temperature goes up to 70 or 80, so the bees can fly, and remains there four or five days, or possibly a week, and then goes down to 50 or lower, a great deal of young brood will be destroyed. You can, if you have had experience enough, transfer the bees in a greenhouse; but I would now advise you to defer the matter till next spring—say about fruit-blooming time. I should be pleased to have you give us an account of your experience this winter—particularly so if you are successful in avoiding the loss of bees.

CONVENTION NOTICE.

The Michigan State Bee-keepers' Association will be held at Petoskey, Jan. 1, 2, 1902. This promises to be the largest-attended meeting of the Association in years. You are invited to attend. Reduced rates on all railroads. Tickets can be bought the 30th and 1st, good to return not later than the 4th. There will be no set programme, but another of our open-congress meetings; those who have attended in the past know what that means, and those who don't should come and find out. A novel design for badge has been ordered in honor of Petoskey.

GEO. E. HILTON, Pres.



LONG tongues are getting to be too much on the order of a "craze." See next issue.

MR. HARRY S. HOWE, of Artemisa, Cuba, the well-known lightning operator, and Miss Maria Habrera, of Hotorro, Cuba, were married at the home of the bride, on the evening of Oct. 11, 1901. Mr. Howe may well consider himself a lucky man, as his wife comes from one of the best families in Cuba.

GLEANINGS proposes to have some articles on wintering. While this question of cellaring bees has been thrashed over and over again, yet I am satisfied there is a good deal to learn along lines that have not been exploited as thoroughly as they might. One is the matter of having a cellar large in proportion to the number of bees confined in it.

I WAS planning to attend the meeting of the Colorado State Bee-keepers' Association; but on account of a great pressure of work I found it impossible to get away. The one I did go to two years ago was certainly a very enthusiastic and profitable meeting. The bee-keepers of the Mountain State can get up about as good a convention as those in any other portion of the country. The last meeting, I understand, was a good one—"the best in the history of the Association."

SINCE I wrote about one of the bee-paradises, the one in Texas (indeed, there are several in that State), I have learned with some degree of pleasure that one of my friends, a hustling young man, is about to start a bee-journal. If writing about bee-paradises results in part in the starting-up of healthy competition, I shall feel that I have done good, even if I do have to work a little harder on our own journal. When I say that I wish all our new rivals success, I mean it. My little trip of six thousand miles has convinced me that this country, with its magnificent distances, is so very large there is no need of our getting jealous of each other. There is plenty of room for all. Come on, boys! we will join hands, i. e., if the "magnificent distances" will permit.

WILL THERE BE LESS ALFALFA HONEY IN THE FUTURE?

A CORRESPONDENT in this issue refers to the fact that the growers of alfalfa hay are beginning to cut earlier than usual; that instead of two cuttings in a season they now get three. The result is that the mower now begins its work just about as soon as the plant begins to bloom. If it should

be found more profitable, in point of hay, to cut early and often, and before full bloom, the ranchmen will, of course, look to their own interests, and not to those of the bee-keepers. There is a bare possibility that the time will come when bee-keeping in the alfalfa regions, where hay is the sole object, will not be as profitable as now. Those who think of going into these new localities would do well to take this into consideration.

THE BEES UNDER THE MACHINE-SHOP.

I HAVE just been down in our bee-cellar under the machine-shop—see p. 868. There was a perfect rumble and roar of machinery overhead. Every now and then some one would drop a heavy casting on the floor, *k'thump*. This produced no disturbance that I could discover. I then turned on the electric lights, and still the bees seemed perfectly quiet. Indeed, I stuck an electric-light globe clear up to the entrance of one hive, and not a bee came out to "see what was up."

We are trying the experiment of opening the cellar-door at night and closing it in the morning, before daylight sets in. As a natural result, the air in the cellar smells sweet and clean; and those magnificent clusters of bees, so quiet, are indeed a pretty sight. Perhaps the fun will come next spring, for there are 250 colonies in a space 8×37; but loose burlap hangs over one end of the inclosure, so the bees really have the air of a cellar 48×96. One thing we have so far demonstrated is that noise, even violent, continual, or intermittent, does not disturb the bees. and this makes it all the better when we enter the cellar, because they have somehow become accustomed to a disturbance.

MOUNTAINS; WHAT ARE THEY GOOD FOR?

THESE great excrescences of rock and earth that tower thousands of feet into the skies, standing, as it would seem, in some cases as impassable barriers to the vanguard of civilization, barren and bleak, wild and dangerous from their rocky precipices, are in reality God sends to that same civilization. What would the great deserts of the West do without irrigation? and how could there be irrigation unless there were millions of tons of snow and ice stored on top of those lofty peaks? The water from wells in those regions is generally brackish, and unfit for any purpose; but melted snow, right from the very heavens—what could be better for man or beast? A barren plain remote from the mountains will probably always be a desert; but some of the most arid portions of our country, within one or two hundred miles of those "impassable barriers," have been reclaimed, and there are millions of acres more just like those that will be made wonderfully productive as fast as civilization pushes onward.

In some cases I found that a triple use is made of this snow. Standing thousands of

feet up in the air on the plateaus, or in the canyons of the mountains, it melts and runs into a reservoir, natural or artificial. It is then conveyed by an enormous flume down to some power-house that may utilize anywhere from five to ten thousand horse power. This water is made to drive immense turbines, and these in turn furnish whole cities with power and light; and all this comes from the mere force of gravity. After the water has subserved its purpose in making electricity it is then diverted into the city mains to supply the city with water; and what is left—and that constitutes by far the greater portion of it, is used for irrigation.

There is any quantity of melting snow now going to waste that might be similarly used. It only awaits the progress of Young America to dam it up and run it into the valleys. If I ever felt like seconding Horace Greeley's injunction to "go west, young man," I do now since I have seen the great possibilities of the West. "But," you say, "what has all of this to do with bee-keeping? Mountains mean snow; snow means water; water, irrigation; irrigation, alfalfa; alfalfa, honey."

I used to wonder, when I was a small boy, why God, when he made this earth, did not make it perfectly level; and especially was the conviction forced on me when riding a bicycle in later years. But suppose he had made it level—what then? Saying nothing about the mineral wealth, possibly half of this land of ours would be an irreclaimable desert, and the same would be true of other parts of the world. But we of the East, with our rainfalls, often pity those who have to depend on irrigation. Last year, when there was such a drouth in Kansas, Nebraska, and Iowa, the people in California, Colorado, Arizona, and in all irrigated regions, were fairly laughing in their sleeves. Said they, "This great drouth will make honey scarce; we fear no drouth, because we can always have water. We can have moist soils when we want them; we can control the conditions. When there is a heavy drouth in the East, there will be a scant supply of honey in New York and Chicago. But we who have plenty of water on tap, and can make the ground moist or dry, *just as we want it*, we will go in, produce the honey, and *rake in the shekels*;" and they have.

At another time I will have something to say about how those Western people actually *make water run up hill*. No, they do not overcome the law of gravity, but in effect they cause the water to flow over the entire land, on the hills and in the valleys, everywhere, without pumps or engines.

HONEY AND ITS DIFFERENT FLAVORS.

I THINK mention has been made already of the carload of honey from California. Mr. Calvert says the freight alone on it was almost \$1000 (really \$934.00). Well, while they were putting it up for shipment in dif-

ferent directions I found a section that was a little broken, and took it over home; and I want to tell you that, although it is different from any honey in the East, to me the aromatic minty taste is just exquisite. Mrs. Root said there was too much mint about it to suit her. But one thing I enjoy about honey is the wonderful variety of flavors. It is like going into a peach-orchard where there are a dozen or more different kinds. You may pronounce the peaches from the first tree the finest you ever tasted. But when you taste one from another tree, you may change your mind, and so on till you have sampled the dozen, all different, but each one so wonderfully entrancing to the taste that you get bewildered, and can only say, "May God be praised for having given us this beautiful fruit, with its many exquisite and delicious flavors." Now, I think it is so of honey. Perhaps I should tire of this from California if I should have it right along, but I rather think not. Ernest says it is probably a combination of sweet clover and mountain sage. I have always liked honey from sweet clover—that is, where it is perfectly ripened—ever since I first tasted it in Salt Lake City. It is intensely sweet. Well, now, the sage just gives this a beautiful minty aroma, perhaps a little like wintergreen in choice confectionery. The honey is so thick that you have to spread it on your bread as you spread butter. Now, I like to have samples of these choice honeys from different parts of the world to exhibit to our friends when they call on us—especially the bee-keeping friends. When you are ordering goods from us I think you had better have at least a sample put in of that choice honey from sweet clover and sage.—A. I. R.

A MOST UNFORTUNATE AND GLARING ERROR
THAT HAS BEGUN TO FLOAT OVER THE
COUNTRY, LIKE THE OLD WILEY
CANARD.

ALONG about the middle of last November, Special Food Commissioner Jones, of Illinois, made an inroad on the honey-adulterators, or venders of adulterated honey, in Chicago. He did some splendid work, and for this he has the heartiest thanks of bee-keepers; but, most unfortunately, he has nullified it to a great extent by sending out a statement to the press to the effect that all fancy white comb honey is bogus, and only that which is travel-stained, or, as he says, has a "brown coloring around the cells," is genuine. The market has already been shaken, not only in Chicago and vicinity, but over the whole country.

This same Commissioner Jones appeared before the National Bee-keepers' Association at its convention in Chicago two years ago. At that time he showed an earnest desire to work in harmony with and for the bee-keepers of the country. He followed up the glucose-mixing business in Chicago so energetically that he practically drove adulterated honey out of the city; but now,

in his zeal to carry out the lines of his official duties, he has gone too far, and has unwittingly, as I believe, classed a large portion of the finest and best honey that the bees can produce as bogus. Here is what he is reported to have said in the *Chicago Tribune* of Nov. 18:

"Genuine honey," he declared, "has brown coloring around the cells. Glucose honey is perfectly white. The purchaser can detect the fraud by this simple rule. Honey, butter, and vinegar are the three articles in the purchase of which citizens are the most subject to imposition just at present, and they are causing most of the work for the commission. Syrups may be classed with honey in this respect."

Such a statement is as wide of the truth as it can possibly be; for by this definition of pure honey all "No. 1" and "Fancy" comb honey is bogus; and how an intelligent food commissioner could have made such a fearful mistake I can not understand. If he had only consulted some bee-keeper (and there are a hundred or so in the city) he would not have made such a blunder. It is to be feared that, notwithstanding all the refutation that can be made through the papers, this misstatement will take the wings of the wind, as did the old Wiley canard, disseminating untruth and prejudice in a way that will do untold mischief to honest producers of honey. It is the more prejudicial, because the statement, coming as it does from such a person, will be read by thousands of consumers, and what will they do? They will go without honey.

It is to be hoped that the Commissioner will make haste to correct his error; and if he is the man we take him to be he will do so by calling upon competent bee-keepers who can show him that all white comb honey, which he indirectly calls bogus, is the genuine product of the hive, just as much as the second-grade stuff he calls pure, which he says "has a brown coloring around the cells." The honey he describes is what bee-keepers call, technically, "travel-stained"—that is to say, the bees under some conditions incorporated into the cappings foreign matter to such an extent that the face of the honey is darkened in the manner explained.

Mr. R. A. Burnett, of Chicago, who sent the clipping above, writes:

We inclose you the clipping, which will be self-explanatory. It is our opinion that such publications as this have a tendency to turn people from the use of honey, many of them taking the view that Dr. A. J. Park does, which is indeed a very unhappy one. While Jones's ignorance of the subject upon which he gives a very positive opinion is plain to you and me, it is safe to say that 75 per cent of the people will accept his statement as being the truth, and thus the sale of honey will be largely curtailed.

Chicago, Ill.

R. A. BURNETT.

Mr. Burnett is one of the few strictly honorable commission men of the country. He is one who is in close touch with the honey market, and an ardent friend of bee-keepers. He, like the Root Co., sees evil forebodings. It's too bad.

What shall be done? Bee-keepers everywhere should promptly answer it if it appears in their local dailies.

NOTES OF TRAVEL.

The Arizona Bee Paradise; Shaded Apiaries.

BY E. R. ROOT.

In our last issue I referred to the wonderful fertility of the soil in that bee-keeping paradise—so fertile, indeed, that alfalfa and other honey-plants grow more luxuriantly there than anywhere else in the United States. But of this I shall have more to say at another time. For the present I desire to call attention to the universal method of furnishing artificial shade for whole apiaries. When it is remembered that Arizona is one of the hottest regions in the United States, and that one of its towns, Yuma by name, on the Southern Pacific R. R., has the reputation of being the "hottest place" in the whole country, one can readily see the importance of providing shade for bee-hives. But, like all hot dry climates, that of Arizona is not so insufferable as one might imagine. Notwithstanding the temperature goes up to 110, and sometimes temporarily to 120 in the shade, one does not suffer from the heat nearly as much there as he would in the East with the mercury at 90 or 100 in the shade. Why this difference? It is simply a matter of humidity. A large amount of moisture with a high temperature is killing, as I have before stated. But a high temperature and a low humidity is quite endurable,

as I found it in Arizona, or, as some of the old residents prefer to call it, "God's country." But, moisture or no moisture, unless the hives are shaded combs will surely melt down, and it is absolutely necessary to provide shade. Trees are rather scarce in that irrigated country; and, besides, their shade would not give protection during the *whole* day; so the bee-keepers have found it necessary to construct a substitute in the form of a large trellis, wide enough to shade at least two rows of hives, and long enough to take in 100 colonies, hives spaced about 4 inches apart. But, mark you, these trellises run in the direction of *east and west*; so when the sun rises in the morning and passes on its onward journey through the heavens, and down again in the west, it never gets a chance to pour its direct rays on the hives. It can be readily seen that, if the trellis ran north and south, the hives would be shaded only in the middle of the day. While that might do for the East, it will not answer for Arizona.

While I was visiting Mr. J. Webster Johnson and Mr. Wm. Rohrig, both of Tempe, I took three or four views that show how these sheds are constructed. As will be seen, they consist of ordinary skeleton trellises. The uprights in some cases are 2x4's, and in other cases they consist of poles. In some across the tops a bracing of wire is used; in others, light strips of wood. All that seems to be needed is a



FIG. 1.—J. WEBSTER JOHNSON'S APIARY.



FIG. 2.—J. WEBSTER JOHNSON'S APIARY, SIDE VIEW.

structure strong enough to stand the winds and support a bed of dried weeds, palm leaves—any sort of shrubbery that can be easily obtained. Of course, it dries up under the influence of the sun, but that makes no difference, for all that is needed is something to break or split the rays of old Sol. The loose stuff is piled loosely on top, and then the whole is held down by means of wire. In some of the views will be seen end-braces that are put up to prevent the general collapse of the structure endwise. Then every one of these is further braced across the top by means of strips or wire. No attempt seems to be made to shut out the light entirely by piling up grasses or weeds, as that would be unnecessary. All that is required is simply to break up the sun's rays. Even if the light does streak through, as appears in the picture in patches, it does no harm.

Every apiary that I visited in Arizona was covered with this kind of trellis, with one exception; and this was the case of a bee-man who had his bees under some great cottonwood-trees along an irrigating-ditch. Let us now examine these pictures.

Fig. 1 is a view of a portion of J. Webster Johnson's apiary where I visited. The long rows of hives in such perfect straight lines, under a shade alike comfortable to man and his bees, presents a rather pretty perspective. Indeed, it is really cool and delightful under these sheds, especially in a light breeze; and, as these structures are very

cheap, I wonder that more of them are not in use in other hot, arid climates. The beekeepers of Texas, Central California, and of the whole South would do well to adopt them. In the Arizona sheds one can perform all necessary work with the bees, because the hives face outwardly, leaving a nice clean pathway in the center, unobstructed by the flight of bees. Combs can be taken out and strewn all around without the least danger of the sun doing any mischief; and it is indeed a pretty sight to walk down one of these long avenues and watch the bees piling in from the alfalfa-fields. And that reminds me that the field at the right in Fig. 1 as seen in the picture is alfalfa. All the bees had to do was to go across the fence and help themselves, and then go rolling and tumbling in at the entrances with big loads of honey.

Mr. Johnson, as will be seen by Fig. 1, numbers his posts. One post, for instance, will be marked 344, and the next one 348. Between these numbers there will be four hives about four inches apart, so it is easy to see which hive, for example, would be 345 and which 347. It is not, therefore, necessary to tag the individual hives.

Another fact in this connection is that, all the hives shown under the Johnson sheds are of the Jumbo type; that is to say, they are 10-frame Langstroth hives, but 2 inches deeper. Their owner seems to be satisfied that this big hive is better for him than the regular L. depth; and the consequence is

that all his hives—some 375—are of this big size.

As the Johnson bees were as nicely put up as any I had seen. I show a number of views. The proprietor was absent at the time; and as he knew nothing of my proposed visit, or probably did not, one can see how neat and orderly he keeps things about his apiary; and when I say "apiary" it comprises three different sheds all constructed in the manner I have described.

Figs. 2 and 3 show other views of the same yards and the same bees. It will be noted that the space between the sheds, as well as under them, is entirely free of grasses or weeds. To bring about such a result in the East costs more in labor than it is worth. But in an irrigated country it is perfectly simple and easy—why, just cut off the water, and vegetation of all kinds will die off. It is the rule, then, that no water is allowed to flow near an apiary—result, a patch of ground as clean as a floor.

Fig. 4 is a view of a portion of the apiary of Mr. Wm. Rohrig, of Tempe. His sheds differ from those of Mr. Johnson in that, instead of using strips of wood across the top to support the weeds and grasses, he makes use of wire braided back and forth. He finds that this answers every purpose, and is somewhat cheaper.

Usually near one or the other of these long sheds there will be an extracting-house. Sometimes it stands about midway. This

is particularly the case where there are two or three rows of sheds, and it is desirable to have the extracting-house at a point where it will save steps as much as possible. In Fig. 4, that showing the Rohrig apiary, the building is centrally located, or about half way down the long aisle. The extracting-building of Mr. Johnson was located just back of the camera where I stood when these pictures were taken: that is, at the ends of the sheds.

All through Arizona I found a decided preference for hives made of redwood rather than white pine. I was shown hive after hive, of the same age—that is, made and put up at the same time, one of redwood and one of white pine. The very dry climate would affect the latter very seriously, while the former, in nearly every case, seemed to be sound and good. This California redwood is quite expensive, and costs more than white pine. Still, the bee-keepers of that country, if they can not buy such hives of supply-manufacturers, make their own hives on foot-power buzz-saws and horse-power machines, because they find that redwood hives are cheaper in the end, even if they are not so well made. But redwood will not do for brood-frames, as it is too brittle. As a rule these are made of white pine, and shipped from the East.

Mr. Wm. Rohrig, whose picture I presented in our last issue, the gentleman sitting on one of his hives, is the local supply-dealer for that country. Indeed, he seems



FIG. 3.—J. WEBSTER JOHNSON'S APIARY, SIDE AND END VIEW.



FIG. 4.—WM. ROHRIG'S APIARY, TEMPE.

to be a man who is willing to help his brother bee-keepers, answering all their questions. I found him about as well posted as to the actual condition of things in Arizona as any bee-keeper I met. The fact that he owns about 800 colonies in Arizona, and some 200 or 300 in California, goes to show he is a bee-keeper who not only knows how to handle so many, but also understands the art of making them bring in for him the dollars. He was one of the Arizona bee-keepers who came clear to Buffalo to attend the National Convention.

and placed on a new stand and gave them a queen-cell. It forces them into sections in a hurry. This comes pretty nearly getting all of the advantages of both the deep and shallow frames for comb honey. Two of the shallow cases are just about right for a body for the deep frames. I rather think this plan is going to be the thing for the production of section honey. If no increase is desired in the fall, unite the bees back together and it will make strong hives for winter.

A. N. DRAPER.

Upper Alton, Ill.

[But why not have shallow frames in both the upper and lower story? This would save handling two depths of frames, and at the same time permit of handling hives instead.—Ed.]



A SCHEME FOR FORCING BEES INTO SECTIONS.

I tried a few hives this last season on the following plan, and shall try a lot of them next season. I use two of the shallow bodies for a brood-chamber, with five of the deep brood-frames in the center, and ten of the shallow frames above and below in the same two bodies. When the time arrived to put on sections I placed the ten shallow frames in one of the shallow cases and gave them about all of the bees. I took the five deep combs away from them, and five from another hive I had treated the same way,

HIVE-COVERS.

Rambler has "discovered" a new fastening for covers. Not meaning any disrespect to Rambler, allow me to ask, "What is wrong with the old Van Deusen hive-clamps? The Van Deusen can be relied upon to hold a cover in fair weather or foul, preventing its warping or sailing away; 5 cents will pay for a pair, which, when attached to the cover, are there to stay. There has been a season's discussion of a non-warping cover, and the verdict is a ventilated cover. I have in use the Madary cover, which has a $\frac{3}{8}$ -inch board over the frames, an air-space of $\frac{1}{2}$ -inch, and a $\frac{1}{2}$ -inch to one inch at center redwood cover on top. This cover holds

its shape in exposed positions. The only fault is in the thinness of the inside cover. I winter my bees on their summer stands, and $\frac{3}{8}$ of an inch of lumber is not enough when the thermometer crawls down to zero and below. I recollect that my father's ice-house, in Pennsylvania, kept cool in summer because the space between the studding was packed with sawdust; and I also recollect that, when living at Leadville, Col., I wanted to give my California wife a warm reception, and so packed the spaces between the sills and studding with sawdust, and the rooms in that house would get so hot we were compelled to put a ventilator in the ceiling; and when the stove got down to business it was sometimes necessary to open an outside door to cool off. Now, why can't the ventilated covers be sold with a small strip to close the sides, and the bee-keeper fill in the space between the two covers with sawdust? This would give us a cover warm in winter and cool in summer. The added cost would not exceed a cent a cover, as sawdust can be had everywhere for the asking, and it would not be necessary to pay freight on it, as the bee-keeper would fill the covers when nailing them up. I should like to see this sawdust cover tested in hot and cold climates in comparison with the ventilated cover, and the results given—two hive-bodies with a thermometer in each, over these a cover of each style, and the record of the thermometer in heat and cold given. Arizona and Minnesota bee-keepers could test it thoroughly. It is the actual test that proves the merit of an invention. Sawdust may be an ideal padding in ice-house and iceland sections, and be found wanting in a hive-cover.

Murphys, Cal. E. H. SCHAEFFLE.

[You will see by the 1902 catalog of the Root Co., soon to be issued, that we have already anticipated the demand for a double cover. This cover is provided with side cleats so that the space between the two boards can be filled with packing-material or left empty according to circumstances and conditions.—ED.]

BEE-STING POISON IN HOMOEOPATHIC PRACTICE.

Mr. Root:—One evening while waiting my turn in a barber shop I picked up the Oct. 1st number of GLEANINGS, and came across the article by Mr. S. P. Holmes, in which he reports the cure of rheumatism by bee-stings. I also noted your editorial notes in which you question whether the disease might not have disappeared or have been removed by the outdoor exercise of taking care of bees. Either one may have been true; but it is also the case that we, especially of the homeopathic school, use *Apis mellifica* a great deal, and for some conditions it is the most powerful remedy of which we know. But it must be in a case in which it is well indicated, as, in fact, of all other remedies, that it will do brilliant work. Its most common use is in in-

flammation of the kidneys, accompanied by dropsy, and also the summer trouble known as urticaria, or "hives." It is not at all unreasonable to suppose that Mr. Holmes' case was one well adapted to treatment by the bee-poison—in fact, many cures of rheumatism have been accomplished by it.

H. R. MINER, M. D.,

Secretary of Nebraska State Homeopathic Medical Society.

Falls City, Neb., Oct. 7.

PROPORTION OF SULPHURIC ACID.

You state in GLEANINGS that sulphuric acid in water will clean dark beeswax, and turn it yellow, but you don't give the proportion. Please tell me the amount to a gallon. I tried it, but it was not satisfactory.

B. HAYNES.

Grand Isle, Vt., Oct. 30.

[Sometimes a five-per-cent solution will do the work; then as strong as is required. That is to say, one part raw acid to ten parts water; but if the wax is very dirty or black you may require to use as high as 25 per cent. Use acid enough to get the yellow color. It is cheap; and when you have secured the proper color you can make your wax enough more valuable to more than pay the expense of the acid.—ED.]

HOW THE LITTLE UTTER BROTHERS RAN FROM THE CROAKING FROGS.

This story is about two brothers who used to live in York State. Their names, as I remember, were Joe and Bill Utter. They were two little boys. They, at the time this happened, had been fishing. They were told not to stay late, as something might catch them. Well, they disobeyed, and they began to be somewhat superstitious. Strange noises were heard in the woods. Pretty soon they heard the deep bullfrog guttural, "Bill Utter! Bill Utter-r-r-r! That ain't you, Bill." Then it came, "Joe Utter! Joe Utter-r-r-r-r!" The boys dropped their line and ran. At last account Bill was still running.

Oberlin, O.

CHALON FOWLS.

[Mr. Fowls does not say whether these two boys were the same as the two brothers in the now celebrated Utter bee and fruit case; but from the fact that "Bill was still running," the fruit-man who was defeated in the recent lawsuit, we are left to infer that he is the same one.—ED.]

Will you please tell me how you form nuclei to the best advantage where you keep nuclei over a strong colony separated by screen wire?

CARL F. BUCK.

Augusta, Kan., Nov. 8.

[We generally use hatching brood. Two frames of such brood, with adhering bees, are set down in one of the compartments. Even if the adhering bees go back, the young brood just hatched will, of course, remain in their new quarters. You will

understand, of course, it does not require so many bees in these nuclei over lower stories, for the simple reason that the warmth from the cluster below rises and gives plenty of heat for the babies above. As an additional precaution, we keep the entrance of this nucleus closed for 24 hours, or until the young bees are hatched out and can defend their home. Of course, there are other ways of forming nuclei, but the hatching-brood plan we consider best. The Somerford method, as described in our A B C book, under "Nucleus," could be used very well—in fact, any other good plan whereby too many bees do not leave for their old home.—Ed.]



7. And the Lord said, It is not good that the man should be alone. I will make a help meet for him.—GEN. 2: 18.

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for those that love him. 1 COR. 2: 9.

I wish to talk to-day to married people who have brought up families—especially those where the children are married and gone away, or perhaps have gone away without being married. I wish to talk to the husbands and wives who are living alone together, or perhaps mostly alone, much as they did when they were first married, before God sent any children into their home. It is a subject I have touched on once or twice before; but it is one that has so much to do with the happiness of the homes in the world that I think I may be excused for taking it up again and again. Come to think of it, I do not know but it is a talk that *all* married people need, from the time they are first married until God calls them.

Somehow during my brief life I have had quite a little to do with husbands and wives who could not get along together. I have talked and plead with both, before divorce proceedings were started, and I have talked with both *after* the divorce. I have urged that the teachings and the spirit of Christ Jesus would do away with all this trouble and anxiety, unrest, and misery. In talking with a neighbor I was visiting a few days ago he said there were four families right in his neighborhood where the father and mother separated after the children were grown up and gone. They lived together and got on very well, apparently, while busy with the cares of rearing the family; but after the children were gone, and the father and mother were in shape to take a little rest, or, suppose we say, in shape to take a good long *vacation* with occasional visits to the children—I should say just when they were at the best time in their lives to have a really good time together, they *quarreled*, and finally—were

separated by law. Why, what a sad thing this is! I suggested to this friend of mine that the gospel of the dear Savior would have made such a thing impossible. And then he told me this story. He said he knew the two parties quite well. They were pious in the extreme; had family worship regularly, no matter what was on hand. He gave me the following incident:

One day he went over to these neighbors quite early, on an errand. It was just time for prayers, and he was asked to sit down and wait until worship was over, then they would attend to his wants. The boys were outdoors, but they had to be called in. The father read from the Bible, then he and his wife sang a part of a hymn, and perhaps the children joined in. I can imagine the older girls would, even if the boys didn't. Then all were expected to kneel down, even the stranger who was with them. If I remember correctly, he, even as a boy, did not "take much stock" in such proceedings, and did not kneel down; but he did wait until it was all through before he could get the thing he came for.

You know, friends, I have often exhorted you to hold fast to the old-fashioned style of family worship. I have said that, if discord did not drive away family worship, then family worship would certainly drive away discord. Well, my informant thinks the Bible-reading, the hymns, and the prayers, kept right on; but notwithstanding all these influences, after the children were gone this father and mother began to have disagreements. It grew upon them gradually; and in a couple of years it culminated in the old gentleman giving the poor wife a *pounding*. Why, it fairly makes my blood chill to write it; and this was simply because he *happened* to be the stronger of the two. He took upon himself the responsibility of striking the poor woman whom God had given as a help and companion, as in the language of our text. Some of you may say the less such things are mentioned, the better. They are too sad and shameful even to talk about. Well, God knows, dear friends, I would much rather not talk about them; and I have taken this subject up only because I wish to inquire into the matter, and find out, if I can, the remedy. It is a very strong case—at least so it seems to me—of going through a *form* of worship without making any practical application of it to the affairs of every-day life. It is *profession* without *possession*; and, oh how much there is of it in this world!

In one of David C. Cook's Sunday-school papers a few weeks ago I read a story of a great missionary conference. A wonderful address was made by a missionary right from Africa. The audience was moved to tears, and a great contribution was raised. Well, *during* this stirring address from one of the world's greatest mission workers, two "street Arabs" crept slyly into the building to get out of the storm. One of them was a colored boy who was already well along in consumption. The great

speaker and his companion passed by these two boys while they were talking animatedly about the great work they were going to bring about among the colored people away off across the water. All at once one of the two caught a view of the two ragged urchins, almost out of sight in one of the pews, and he was proceeding to hustle them out in a jiffy, asking them what *business* they had to come into God's holy place in such a plight as that. A young lady, a Sunday-school teacher, happened to be near; and, even if the great doctors of divinity did not notice the awful inconsistency of the thing, this girl did. She protested, and insisted that the great truths that had just been proclaimed from the desk should be put into *practice*, and that, too, *at once*. The colored boy was cared for as long as he lived; the other one, despite the inconsistency of his treatment, had gotten hold of the wonderful truths expressed in the eloquent sermon, and with a little encouragement soon accepted Christ as his Savior. This may be fiction; but, oh dear me! God knows it is not *all* fiction, and I do not know that the story is overdrawn. It has been a hint to me ever since I read it, to look out for the ragged and sin-stained urchins who may lurk about *my* path.

Now, about this husband and wife, or, if you choose, these husbands and wives who have separated, are separating, or who are (*may* be) contemplating separation, just as their eyes rest on these pages. Dear brother and sister, I know something about the matter. I have had some experience, even if I am only 62 years old. When people get to be of my age, some sooner and some later, gradual changes come over them. First the man and his wife, without knowing it, become forgetful and absent-minded. Why, for a year back I have been appalled when proof I could not dispute has been brought me to show I have been doing things I had declared I did not do. I have room for only one illustration here.

A few days ago Mrs. Root and I were on that beautiful woodland path on the way to Sunday-school. All at once she said, "There, I have not got my specs." I volunteered to go and get them, but she tripped off ahead of me, saying she was not sure I could find them. But I had the doorway in my pocket, and so I ran on ahead of her and unlocked the door. She got her glasses and handed them to me, saying she thought she had better have the case. Then she handed the case to me and I put the spectacles inside of it, and supposed I handed them back to her. We locked up the house again, and hurried back so as not to lose time; but when we got to Sunday-school she excused herself for not taking a class by saying she could not find her glasses. When we arrived home, there they were, inside of the case, on the table in the center of the room. We both went back after them to make sure, and then we both left them lying on the table, hurrying back with the happy consciousness of having done our

duty. Of course, we had a big laugh about it; and now every little while we two do things of this kind. I have put something away that we may want in the future; and for fear I may forget where I put it I say, "Now, Sue, will you help me to remember that I put this thing here—do you see?"

"Yes," she replies, "I see, and I think I will remember."

Well, when the thing is wanted we have both forgotten where we put it. Now, friends, do you not see what a chance this gives Satan? If there should not be perfect trust and harmony and love between these two elderly people, they might easily get to blaming one another. I heard a man say, a few days ago, "Now, who took my *Rural New-Yorker*? It just came from the postoffice yesterday, and I laid it right up here" (putting his hand on a shelf pretty well up out of the way), "but somebody has taken it. Where is it?"

The wife and children all went to hunting for the *Rural New-Yorker*. I myself had asked him to let me see it, as I did not get it up in our "cabin," and we both wanted it right away, for we were in a hurry. Finally he said something like this: "Mr. Root, I have threatened to do it before, and now I believe I will do it. I will have me a secretary that I can lock up, and will put the papers in it, and turn the key and *put it in my pocket*, and the rest can have them after I get through with them."

I suppose that, if his good wife had told him then and there that she found the paper in another place, exactly where he laid it, he might have declared, even before company, that he did not lay it down there, but on the high shelf. His wife, however, is one of those discreet, gentle, lovable women. She had more wisdom than some women who refuse to be abused for things that are the fault of the abuser. She handed him the paper, but said nothing; but she afterward told Mrs. Root she found it right where she was quite sure he himself left it. Now, I have known a trifling thing like this to stir up wicked feelings in the heart of perhaps more than one member of the family. By the way, I wonder what our good friend Collingwood, of the *Rural New-Yorker*, will say when I inform him that, when his paper comes from the postoffice, everybody at this home wants it at once, and this, too, in a family where there is a great number of papers and periodicals of all kinds. And let me say here to my good friend (he is a bee-keeper, so he will excuse me) that, instead of feeling cross, and making threats about locks and keys, he should thank God from the bottom of his heart for two things especially. One is that he has a good-sized family of children, who, wife included, want to read and *do* read such a good Christian paper as the *Rural New-Yorker*; and, secondly, he should thank God from the bottom of his heart that he has been so prospered as a farmer that he can subscribe regularly for such a multitude of papers that it is some-

times a hard matter to find any particular one on short notice. And this illustrates how we often get cross, and grumble about the very things we ought to be devoutly thankful for.

I have thought many times of late that God has spoiled us by giving us too much. He has been too kind, and we are getting to be ungrateful; and this certainly is true in a majority of cases with husbands and wives who quarrel after the family has grown up. One of the reasons why trouble comes between the man and his wife is, as I have suggested, that they are becoming forgetful, and do not realize it. Another is, that their health begins to fail, perhaps in many ways. They do not *hear* what is said as distinctly as they used to do. They do not *see* as well. The glasses get lost. As we get older there is more apt to be indigestion unless we are careful. We do not take as much outdoor exercise as we used to do, and we suffer in consequence. When there are no children (or other people) around we are not as careful to be courteous and kind as we used to be. Satan puts it into our heads to think it is a fine thing to speak out plainly. Both of us become more careless than we used to be because things are not crowding, perhaps. Little by little an irritable spirit gets into one or both of our hearts. Family worship may be gone through with as a form, but the spirit may be lacking. In other words, the Spirit may be *grieved* away, as we are warned in Ephesians.

Some months ago I told you of an experience I had that frightened me. I dreaded to speak of it then, but I felt that it might prove a warning to others as it had been and still is a warning to me. Something that belonged particularly to myself was out of place. I did not mean to be unpleasant or unkind, but I fear I must have been so, thoughtlessly. At any rate I spoke in a complaining tone. I was informed that nobody had touched it but myself. Whatever the condition of things, it was certainly my own doings. I attempted to explain that it was not my own doings, and could not have been. By this time I certainly was out of temper; a bad spirit had entered my heart. Now, dear brothers and sisters, let me assure you that you do not know how *contagious* a bad spirit or a bad temper is. The reply I received was something different from any thing I had ever heard from the person who uttered it. It raised a tempest in my heart—such a tempest as I never dreamed, especially of late years, was possible. That little warning began to ring out sharp and clear, "Lord, help." But for some reason or other the Lord did not help. I prayed earnestly, but Satan had gotten a foothold. He kept declaring that I was wronged without reason, and that it was not my duty to bear it. I knew it was Satan. God knows I have, through my poor life, felt his clutches *often* enough so I ought to know him. I prayed most earnestly. I tried to read my papers; but my eyes

went away out into vacancy beyond the papers, and pictured the wrong I had suffered in different forms. Words came thronging in troops—hard bitter words. I arose and went out into the darkness of the night, but they followed me still. I could only groan and pray. I did not understand it then, and I do not understand it now. The whole thing was preposterous. All of it grew out of a little unimportant matter. Suppose I *was* wrongfully accused; suppose I *was* right, and somebody else wrong—what did it matter, any way? See what Peter says:

What glory is it, if, when ye are buffeted for your faults, ye shall take it patiently? but if when ye do well, and suffer for it, ye take it patiently, this is acceptable with God.—I. PETER 2:20.

I knew all these things, and I knew I had taught all my life the beauty of suffering for Christ's sake—of returning good for evil, and all that; but I was caught in Satan's toils, and I could not get out. Thank God, I did have sense enough to keep still and not say a word. This mental conflict, this mental *wrestling*, if you choose, with the prince of darkness, kept his hold on me for hours; and all next day I felt like one who had been through a fit of sickness, or had labored beyond his strength. It was not my *muscles* that were sore, however—it was my spirituality. Since that time I look with horror at the thought of the demon that lurks out of sight, almost unknown, in my own heart. The Bible says, "The heart is deceitful above all things, and desperately wicked: who can know it?" I know, if others do not, that this is true. The memory of this thing I am telling about has made me afraid.

I presume people are unhappy *after* they have separated. I know by what some have confessed to me how much mental suffering they endure while considering the matter of divorce. I am pretty sure that language can not express the misery and suffering that would be mine if any thing serious were to happen between myself and the companion God has given me. After this thing I have spoken of, I resolved over and over again that I would avoid even the *appearance* of evil along this line. I decided to set the example of avoiding any sort of dispute or disagreement between us two when we were alone. I resolved to keep back *all* fretful or impatient speeches, and declared to myself and before my Savior that I would be gentle and kind and courteous to "the woman I love" as I would be to any other woman whom I might meet on the street, for instance, or to the bee-keepers' wives or grown-up daughters where I may be visiting. Some people may smile at the idea of being as pleasant and courteous and obliging to *your own wife* as to other women; but, my good friend, if you are, *every moment of your life*, as gallant and civil to your wife as to any other woman, you are a model husband.*

*It sometimes transpires that something *must* be said to your wife that you know pretty well will produce unpleasant feelings. I have had several experiences of this kind, some of them quite recently. Be-

After having had a hand-to-hand tussle with Satan, we often have some of our happiest and most pleasant surprises—that is, if we come out victorious. After Satan did his best to tempt the Lamb of God, and failed, we are told that angels ministered to that well-beloved Son, and I am sure it is so in our own experience.

You know I wanted Mrs. Root to go with me on a vacation, and live in that cabin in the woods. The idea seemed to her—yes, and to lots of other people—in some respects preposterous. Just think of it—leaving a good nice home with all modern comforts and conveniences, and going away off in the woods, four hundred or five hundred miles away from home where there was not *any thing!* I told you in one of these talks that I “captured” her forty years ago, and I was going to capture her this time, and take her up to my cage in the woods. When she finally consented, and was safely landed there, I set myself to work to make her happy. I succeeded. Even she herself admitted that my project was a success, and we are talking about it now, every day, of another trip there in the spring.

Dear brothers and sisters, I have asked you to undertake some difficult things, perhaps. You may say it is not worth while to take such pains to try to be kind and civil, and to be careful of every word and act. I am now going to try to tell you of the rewards we get for this kind of service. Several times I have decided it was not in my power to tell you of the real happiness and joy that has filled my heart for the past two months. Perhaps I can succeed in one way. When I first became acquainted with Mrs. Root it seemed to me this whole wide world had no joy for me that would equal having her for a daily companion. Yes, I remember well the day after our marriage when we rode together quite a number of miles to a railroad station. As she sat by my side it gave me a great thrill of happiness. My heart fairly bounded at the thought of being with her and laboring for her all the rest of my life. It was our honeymoon. I looked forward to much happiness and to great happiness. You know my enthusiastic disposition. Well, dear friends, what I wish to say is this: My expectations and anticipations on that day have been *more* than realized. But the best part of our honeymoon came after we had been married more than *forty years*. Years ago, when a young man seemed to care so

fore you do any thing or say any thing, pray earnestly for grace from on high; pray for the Holy Spirit in such quantity (if that is the way to express it) that Satan can not possibly get any hold on you; then go to your wife alone, put your arm about her to assure her of your love and kindly feeling. Present the matter carefully, and, above all, *lovingly*. So far as *you* are personally concerned, consent to bear any burden for her sake, God helping you, and he always will help you, and you will come out triumphant. God planned in the beginning of the world that *you two* should be *one*; and through Christ Jesus, his only Son, *you may* be one; and this world may be to you both a world of joy and happiness instead of being a “wilderness of woe,” as it is with some husbands and wives because they *persist* in letting Satan manage.

very much for some good girl, I have heard people say, “Why, he loves the very ground she treads on.” Well, if this was ever really true in my experience, it was when we were up there in the woods together. Now, this is exactly what God intended. It was what he planned in the beginning. Our text tells about it in Genesis, and the same thing is repeated over and over again on almost every page of that dear old Bible; and when we read that wonderful concluding text from Corinthians, “Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things that God hath prepared for them that love him,” I believe this promise is largely fulfilled in the relations that God intended should exist between husband and wife. I am convinced that oftentimes surroundings hinder this loving trust and confidence. We two were off together away from the care and worry of business and other things here at home. We were so situated that I could take part in all the household cares in a way I had never done before—not even when we were first married; yes, and she could take part in all *my* work. She used to go out in the woods a part of every day, and enter into full sympathy with me and my work just as I did in the house with her and her work. Our regard for each other is of a different kind now from what it was in the days of courtship. It is a quieter, steadier, purer, and a more holy and sacred regard—certainly more unselfish.

Now, please, dear brother, do not understand that I am thinking Mrs. Root has any unusual merit more than your wife would have under like circumstances. If she is not willing to go with you as Mrs. Root consented to go with me, it is most likely your own fault. You can win her if you choose and if you will, not only to the home of your choice, but it is your privilege to win her, if she is not already there, to Christ Jesus; and it is the privilege of both of you to enter together *here in this life* into the happiness and joy described in the second of our texts.



CREATING IN DOMESTIC ANIMALS AN APPE-
TITE FOR FOODS THEY ARE NOT ACCUS-
TOMED TO USE.

Last summer we planted some of Mills' Prizewinner beans in my garden in the woods in Northern Michigan. You will remember the Prizewinner bean is the one that enabled me here in Ohio to grow two crops of dry beans on the same ground, with the same seed, in one season. Well, these beans made a prodigious growth in the rich woods dirt. In fact, when I was there, just before they were getting ready

to blossom, I thought they would be all vines and no beans; but later on, Mr. Hilbert wrote me there was an astonishing yield of beans on those same vines. The stalks were something like two feet high and two feet broad, and just yellow with bean-pods. I told friend Hilbert that, as he took such a fancy to them, he might save the seed and plant it another year. He took the beans home and put them on the barn floor till he could get time to thrash them out. Pretty soon the chickens got to breaking the pods open and eating the beans. He was astonished at this, for he says he never before saw a dry bean that a chicken would eat. As he regarded the seed as valuable, he covered the beans up, as he supposed, so the chickens could not get at them. But they seemed determined to have them. In fact, he had to fight, almost, to keep the chickens away. Now, he decided that this unusual occurrence was because the beans were of a different variety, and something the chickens liked; and, by the way, they cook quicker than any other bean I ever saw—in fact, they are cooked all to pieces before you know it, and I do think they are the best table beans—that is, in the shape of a dry bean—I ever got hold of. I will not except even lima beans.

Well, it may be the chickens discovered that this bean was different from other white beans. My impression is, however, that they simply acquired an appetite for them under the circumstances. Probably they were confined to the barn some rainy day, and wanted something to do. Chickens are curious, especially young ones. They broke open the pods, swallowed a few beans, found they digested all right, and one after another learned the trick. By the way, I wish Bro. Hilbert would try those same chickens with the common Navy white bean, and see if they will not eat them since they have learned how.

You may suggest that beans at the present price are rather expensive feed for fowls. My dear friend, cull beans can be bought in great quantity at a very low price where beans are grown largely. After the chickens have learned to eat good beans they will eat the culls, without a doubt. Then here is another thing: Hundreds of bushels of beans—may be thousands—are thrown away, or put among the culls, just because they have a little stain on the outside. This stain does not hurt them a particle—it only makes them look bad. We have for years cooked our cull beans for poultry.* I have told you with what avidity they eat them, especially in winter, when they do not have a great variety of food, and how it starts

them to laying. Well, one day when we cooked up some beans for the chickens (they were sorted beans that had already been sorted once) they looked so good I decided to taste them. They were just exactly as good to eat as beans that are all white. People who are suffering from the want of a good wholesome food might use these cull beans.

A few days ago one of my neighbors in the Traverse region, who raised quite a few beans was throwing the bean straw out on the manure-heap. These beans had got caught by the frost, and a good many of them did not thrash out. I suggested the straw was valuable for cattle, if kept under shelter until cold winter weather gave them an appetite, and also that the unripened beans could be easily thrashed out for the poultry. They keep a large lot of poultry, and all kinds of grain are expensive away up north. Now, their chickens had not learned to eat beans, and the owner of the beans had not learned to cook them for the chickens nor for the pigs (they keep pigs also); and although they grew beans by the acre, they had been in the habit of wasting bean-stalks and the cull beans.

Now, this matter touches on another one—of the cows and horses not eating sweet clover. The successful farmer should see to it that his chickens, pigs, cows, and horses are *educated* to eat things that might otherwise be thrown away. Here is an article I just took from the *Rural New-Yorker*, that touches on this matter; and it contains so much other valuable information that I give it entire. The truck farmer, and farmers in general, keep, as a rule, more or less poultry. They can not afford to lose the valuable stuff poultry will consume. Here is the article:

CLOVER AND COW-PEA BENEFITS.

Reference has been made in these notes to the usefulness of crimson clover and cow peas as hen forage. We are able to report an increasing partiality for these nitrogenous foods among the two flocks of chickens kept on the Rural grounds and correspondingly good results in the way of egg production. Hens readily take to clover in any variety, but they are often shy of beans, seldom eating them uncooked. An appetite for raw peas or beans may be considered an acquired taste coming on gradually. Our hens ignored the cow-pea seeds the first season they were grown here, and developed the taste only late in the winter when scratching the pods open by chance in a sheltered part of the field. The example of contented old biddies coming in with comfortably extended craws and an urgent thirst for water to complete the swelling process proved contagious, and they all now hurry to the field at once on being released from the yard. There can be no doubt as to the beneficial effect of the exercise needed to get the pods open, nor of the high food value of the beans themselves. The Rural grounds lie in a strip about 800 feet long by 200 wide. There are poultry houses near each end, and the flocks have but little chance to mingle, as they are necessarily kept yarded most of the time; yet the cow-pea habit, which we heartily approve, seems to have been communicated. The second flock has no access to the field, but acquired the taste from scratching the gathered pods shelled for seed. An increase in egg yield was noted in both cases as quickly following the ripening of the Early Black cow peas, which is the variety best suited for us. Cow-pea seeds, when ready for market, are too costly for poultry food, but we are convinced that a patch of these hustling land-improvers handy to the chicken-yard is a good investment where practicable. Crimson clover has become a necessity, sown in August between bush fruits and after early

* Since the above was put in type I have had some old red kidney beans cooked for my new strain of young poultry—the progeny of that fighting rooster. They had not yet learned to eat beans, and wouldn't I took away their other feed, and tried starving them to it, but they would not eat them, even then. Finally I mashed the beans up and stirred in them some chop feed, so as to make it look like their daily mash, and it was all gone in a twinkling. I was obliged to go to all this pains in order to convince them that beans are good to eat, and now they eat them with avidity.

crops to improve our soil and diminish washing by winter rains, and incidentally as forage for the fowls, who keep the more accessible strips sheared as closely as with a lawn-mower. The season has been favorable, and the plants on early-sown strips are now seven to eight inches high; but we find such leafy plants do not, as a rule, winter as well as those closely picked by the fowls. Chickens are fond of green food, but eat very few weeds with relish. If not provided with clover in this manner they are very troublesome on the lawn, when at liberty. These clover strips entice them away, and thus fit in all along the line.

The above touches on another thing that has been on my mind a good deal. It costs so much to hire labor nowadays (more in Michigan than down here in Ohio) that we must study to grow crops that can be produced with little labor. I have told you about our winter onions. They have never had any attention whatever except to gather the crop of sets. Well, in the Traverse region they grow beautiful grapes on the hillsides, without any cultivation whatever. The owners say they do better to let them trail on the ground; and they ripen quicker because of the heat of the sun on those sandy hills.

Well, there is quite a list of things that may be grown for poultry, and the poultry be allowed to gather the crop and do their own feeding; and I doubt if any system of feeding will give as good results as letting the fowls go out in the fields and gather their own food, helping themselves to the sweet corn as it stands in the fields, shelling out the cow peas, and helping themselves to grains of different kinds sown in waste places expressly for the poultry. They will lay more eggs and raise more chickens, and I do not know but I may say *better* ones, where they are *educated* to do this kind of foraging. I have seen a great brood of chickens hatched out in a buckwheat-field, and they grew to maturity without ever being fed or cared for in any shape or manner. The mother hen happened to hatch her chickens just as the buckwheat was far enough along so the chicks could eat it.

Now, friends, do not let any stuff be thrown away or go to waste until you have faithfully tried getting some of your domestic animals to *learn how* to eat it.

CONVENTION NOTICE.

There will be a bee-keepers' convention (annual) held in Canandaigua, N. Y., by the Ontario Co. B. K. A. on Dec 12 and 13. FRIEDEMANN GREINER, Naples, N. Y., Nov. 15. Secretary.

Minnesota Bee-keepers' Supply Mfg. Co., Manufacturers of Bee-hives. Sections. Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

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Queens! Untested, \$1.00; tested, \$1.25 and upward. See former ads. and circular.
J. B. Case, Port Orange, Florida.

Wants and Exchange.

WANTED.—To sell my entire bee business, consisting of a 10-acre ranch three miles west of Phoenix, all in alfalfa, with water, for \$1300; a 20-acre ranch with water, 8 miles from Phoenix, for \$1000; bee sheds and fixtures on a rented 5-acre lot, wagons, two extractor tanks, 500 colonies of bees at \$5.00 per colony, in two-story hives. Reason for selling, I wish to retire, because I am tired of doing my own cooking, and have enough to live on anyway.

JOHN NIPPETT, Box 1051, Phoenix, Arizona.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell cheap, 20 acres of good Florida land, well situated, at a low price. Address for particulars, MRS. I. B. WEIR, Toledo, Florida.

WANTED.—A good farm hand, with temperate habits, by the year, who wishes to learn the bee-business. I keep 500 colonies

W. J. STAHMANN, Bruce, Wis.

WANTED.—To buy 300 colonies bees in Mississippi, Louisiana, Arkansas, or Texas. Write M. STEVENSON, Dardenne, Missouri.

WANTED.—To sell a custom saw and feed mill and 27 swarms of bees with supplies, all in first-class condition. F. L. RIGGS, Box 48, Buckton, N. Y.

WANTED.—To exchange Barred Plymouth Rocks—single birds, trios, and breeding pens—and eggs in season, for Root's 8-frame hives, extractor, or offers. My birds are a combination of best strains in America. Chamberlin Hill Poultry Farm, Jordan, N. Y.

WANTED.—To sell or exchange three saw-benches with saws (\$15 each), one ditto (\$20), machines for boring, matching, sanding, dove-ailing, and press-cutting (\$5 to \$15 each), leather belting, 3 ft. fling, pulleys, etc., at half price; all in good running order; will take honey or offers; will take 10 per cent less for cash. Write, C. W. COSTELLO, Salford, Maine.

WANTED.—To exchange a No. 15 two-frame Cowan honey-extractor for a No. 5 Novice extractor. ADOLPH SEGERLIN, Anita, Pa.

WANTED.—A queen-breeder with experience. Correspondence solicited. Reference required and given. Address G. F. DAVIDSON, Fairview, Texas.

WANTED.—To sell 600 colonies of bees in 8 and 10 frame Dov'd and Danzenbaker hives at \$2.00 and \$2.25 each. W. N. CANNON, Greenville, Ala.

WANTED.—To sell our entire plant and situation, including a complete line of machinery for manufacturing bee hives, comb-foundation, etc. In connection with same we have a first-class up-to-date planing-mill in every respect. Our good will and list of customers go with it. This is a bargain, and will pay you to investigate. Address

W. R. GRAHAM & SON, Greenville, Texas.

WANTED.—To buy a home somewhere in a good bee locality, and in a mild climate, and where there is a good chance for good schools.

DANIEL DANIELSEN, Clarkson, S. D.

WANTED.—A situation as assistant apiarist, or charge of small apiary and fruit or poultry farm, in the southern or western States. Good reference can be given. CHAS. G. GIBBS, Brunswick, O.

FOR SALE.—Fine ripe extracted touch-me-not honey, in 60-15 square tin cans, 2 cans to a case, delivered at R. R. station at 7½c. Sample postpaid, 8c. C. A. BUNCH, La Paz, Marshall Co., Ind.

FOR SALE.—4000 lbs. light amber extracted honey at 5c per lb. W. C. GATHRIGHT, Las Cruces, N. M.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

WANTED.—Comb honey and beeswax. State price delivered at Cincinnati. C. H. W. WEBER, 2146-2148 Central Ave., Cincinnati, O.

Notice!

QUIRIN, the queen-breeder, still has 100 of those long-tongued red-clover queens on hand at \$1 each, or 6 for \$5. If you want one speak quick. For testimonials see former adv'ts.

Bees Wanted!

We are expecting to establish several out-apiaries next season and desire all the bees we can get; want 'em on movable frames, and near home. They must be cheap at this time of year. Parties placing us in correspondence with those having bees to sell will be remembered next season when we have a nice lot of those long-tongued red-clover queens on hand (in case we succeed in purchasing of said parties).

In our circular we list numerous articles used by bee-keepers, on which we will give 10 to 20 per cent discount from now until the coming March. Address all orders and inquiries to

H. G. Quirin, Parkertown, Ohio.

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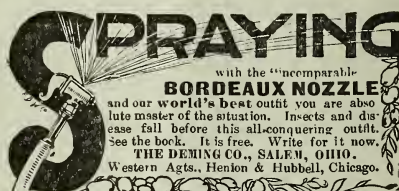


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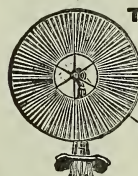
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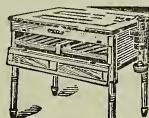
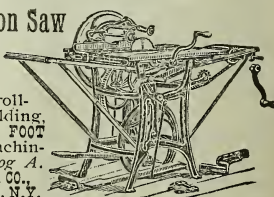


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